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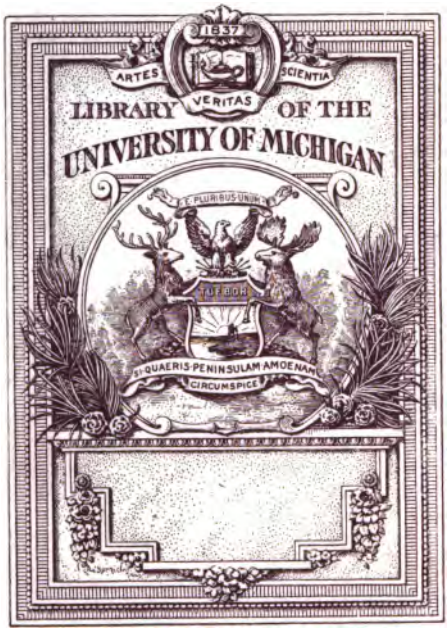
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Frank D. Bain

THE OHIO STATE MEDICAL SOCIETY

TRANSACTIONS

OF THE

FIFTY-SIXTH ANNUAL MEETING

HELD AT

CINCINNATI, OHIO

MAY 8, 9, 10, 1901

CLEVELAND
PRESS OF J. B. SAVAGE
1901

THE

FIFTY-SEVENTH ANNUAL MEETING

OF THE

OHIO STATE MEDICAL SOCIETY

WILL BE HELD IN

TOLEDO IN MAY, 1902.

OFFICERS

OHIO STATE MEDICAL SOCIETY

President.....Edmund C. Brush, M. D., Zanesville.
First Vicepresident..... E. Gustav Zinke, M. D., Cincinnati.
Second " .....S. S. Halderman, M. D., Portsmouth.
Third " ..... J. C. M. Floyd, M. D., Steubenville.
Fourth " ..... W. D. Phillips, M. D., Belle Center.
Secretary.....P. Maxwell Foshay, M. D., Cleveland.
Treasurer.....James A. Duncan, M. D., Toledo.

COMMITTEES

Finance

J. E. Cook, M. D. (97)
H. A. Zimmerman, M. D. (98)
W. J. Conklin, M. D. (99)
E. C. Brush, M. D. (1900)
J. C. Oliver, M. D. (1901)

Ethics

Dan Millikin, M. D. (97)
R. B. Hart, Jr., M. D. (98)
D. R. Silver, M. D (99)
J. H. Rodgers, M. D. (1900)
F. W. Blake, M. D. (1901)

Publication

P. M. Foshay, M. D. (97)
J. M. French, M. D. (98)
J. P. Sawyer, M. D. (99)
Dan Millikin, M. D. (1900)
Jesse Snodgrass, M. D. (1901)
E. C. Brush, M. D. and P. M. Foshay, M. D. Ex-officio.

Legislation

J. A. Kimmel, M. D. (97)
D. N. Kinsman, M. D. (98)
N. P. Dandridge, M. D. (99)
T. M. Gehrett, M. D. (1900)
T. C. Martin, M. D. (1901)

National Medical Legislation

L. B. Tuckerman, M. D.

Admission and Medical Societies

J. E. Russell, M. D. (97)
Thomas Hubbard, M. D. (98)
Frank Winders, M. D. (99)
N. S. Scott, M. D. (1900)
T. M. Wright, M. D. (1901)

Growth and Prosperity

C. L. Bonifield, M. D.
(term expires 1902)
Wm. H. Humiston, M. D.
(term expires 1903)
W. C. Chapman, M. D. (99)
C. F. Clarke, M. D (1900)
P. J. Kline, M. D. (1901)

Chairman of Committee of Arrangements for Toledo Meeting, 1902

W. C. Chapman, M. D.

173654

OHIO STATE MEDICAL SOCIETY

At the Seventeenth Annual Meeting of the Ohio State Medical Society, the following resolution was adopted:

Resolved, That the publication of any address, prize essay, or other paper, by this Society, is no evidence of its endorsement of the sentiments therein contained.

CONTENTS

CHAPTER I

The Minutes, including reports of officers and committees..... 9

CHAPTER II—ADDRESSES

The Limitations of Medical Therapeutics—Frank Billings, M. D., Chicago..... 27

Address of the President—Frank D. Bain, M. D., Kenton..... 35

Address in Surgery—A Surgical Operation—John A. Wyeth, M. D., New York..... 41

CHAPTER III—MEDICINE

Glandular Fever—J. Park West, M. D., Bellaire..... 57

The Pretubercular State—W. S. Philips, M. D., Belle Center... 65

Epigastric Pain—Henry Wald Bettman, M. D., Cincinnati.... 75

A Limited Number of Observations on the Serum Treatment of Pneumonia—Joseph Eichberg, M. D., Cincinnati..... 81

The Cardiovascular System in Interstitial Nephritis—W. J. Conklin, M. D., Dayton..... 94

Albuminuria for Sixteen Years Without Perceptible Impairment of Health—P. Maxwell Foshay, M. D., Cleveland..... 103

Why is the Present Epidemic of Smallpox Likely to Continue? —W. C. Chapman, M. D., Toledo..... 112

The Prevention of Typhoid Fever in Villages and on the Farm —C. O. Probst, M. D., Columbus..... 126

Some Experience With Salts of Gold—John E. Sylvester, M. D., Wellston 135

Autotoxemia—William W. Pennell, M. D., Fredericktown.... 140

CHAPTER IV—SURGERY

Hypertrophy of the Prostate Gland—Horace J. Whitacre, M. D., Cincinnati..... 147

The Importance of the Early Recognition of Abdominal Infection—W. D. Hamilton, M. D., Columbus.....

House-to-House Operating—Edmund C. Brush, A. M., M. D., Zanesville 170

Traumatic Stricture of the Esophagus—Frank E. Bunts, M. D., Cleveland 180

Laryngectomy—George W. Crile, M. D., Cleveland..... 191

A New Method for the Removal of Hemorrhoids Under Local Anesthesia—Thos. Chas. Martin, Ph. D., M. D., Cleveland. 217

Cystic Adenoma of the Pancreas, Extirpation—Joseph Ransohoff, M. D., F. R. C. S., Cincinnati..... 225

CHAPTER V—GYNECOLOGY

Report of a Case of Porro-Cesarean Section for Placenta Previa Centralis—Wm. J. Gillette, M. D., Toledo..... 235

Ovarian Pregnancy: Is It an Explanation of Ovarian Hematomas?—N. Stone Scott, A. M., M. D., Cleveland..... 246

The Prevention of Pelvic Disease Before and During Puberty —Wm. H. Humiston, M. D., Cleveland..... 257

Prevention of Pelvic Inflammatory Disease After Marriage—Rufus B. Hall, M. D., Cincinnati..... 260

The Prevention of Pelvic Disease During and After Labor—James F. Baldwin, M. D., Columbus..... 268

What is the Significance of Cervical Lacerations?—Chauncey D. Palmer, M. D., Cincinnati..... 290

CHAPTER VI—NOSE AND THROAT

A Rapid Dilation of the Eustachian Tube by Electrolysis, a Factor in Chronic Catarrhal Otitis Media—C. P. Linhart, M. D., Columbus..... 295

CHAPTER VII—STATE MEDICINE

How the Medical Practice Act in Ohio Can be Most Efficiently Enforced—N. R. Coleman, M. D., Columbus..... 304
Hospitals in Small Cities—Lester Keller, M. D., Ironton..... 334
On Professional Practice and Morals in Relation to Life Insurance Work—W. W. Vinnedge, M. D., Lafayette, Ind..... 343

CHAPTER VIII—OPHTHALMOLOGY

To What Extent May We Hope by Treatment to Delay the Progress of Cataract?—C. F. Clark, M. D., Columbus.... 350

CHAPTER IX—ORTHOPEDIC SURGERY

Abnormal Conditions of the Foot as Cause of Knee Symptoms —Albert H. Freiberg, M. D., Cincinnati..... 359

CHAPTER X—NEUROLOGY

The Morbid Anatomy of Epilepsy—Being a Summary of the Results in One Hundred and Thirty Autopsies—A. P. Ohlmacher, M. D., Chicago, Ill..... 372
Acute Anterior Poliomyelitis in the Adult—D. I. Wolfstein, M. D., Cincinnati.....

CHAPTER XI—MEMBERSHIP AND DELEGATES

Roll of Permanent Members Arranged Alphabetically by Name. 379
Roll of Permanent Members Arranged Alphabetically by Counties 402
Roll of Honorary Members..... 416
Roll of Delegates to the American Medical Association (1901). 416
Roll of Nonresident Permanent Members..... 417
Permanent Members Elected 1901..... 417
Registration of the Fifty-Sixth Annual Meeting, Cincinnati, May 8, 9, 10, 1901..... 420
Societies Auxiliary to the Ohio State Medical Society..... 423
List of the Members of the Local Medical Societies Auxiliary to the Ohio State Medical Society..... 425

CHAPTER I—THE MINUTES

FIFTY-SIXTH ANNUAL MEETING OF THE OHIO STATE MEDICAL SOCIETY

The fifty-sixth annual meeting of the Ohio State Medical Society was called to order in the Scottish Rite Cathedral in Cincinnati by President Bain at 2 p. m. Wednesday, May 8. The divine blessing was invoked by the Rev. Hugo Eisenlohr.

In the absence of the Mayor, the address of welcome was delivered by E. Gustav Zinke, M. D., chairman of the Committee of Arrangements, to which response was made by President Bain.

ADDRESS OF WELCOME

Gentlemen of the Ohio State Medical Society:—On no one occasion before have I regretted more than now that I am not an eloquent speaker. Only in simple words can I convey to you the hearty and cordial welcome of the City of Cincinnati. We are a simple people, we make no pretensions, but we can give what we have to the stranger, or the guest, who may have been invited or who visits our city.

No one regrets more than I that our Mayor is not able to be present on this occasion, for it is not only that he was to deliver the address of welcome, but we wanted you to meet and see him, for we love and admire him because he is every inch a man and the soul of honor.

As Chairman of the Committee of Arrangements I only desire further to say that, when you wend your way homeward, you will depart from us with the feeling that on the next invitation you will be ready to respond and come back to see us.

PRESIDENT'S RESPONSE

On behalf of the Ohio State Medical Society I desire to thank you cordially for the very kind and courteous welcome which you have given the State Society. We hope that our stay in your midst may be pleasant as well as profitable, and that we may carry home with us the most pleasant remembrances of the meeting of the State Society in 1901.

The report of the Committee of Arrangements was made by E. Gustav Zinke, M. D.

The Committee on Admissions was called and no members were present. The Chair appointed W. H. Humiston, M. D. of Cleveland; Joseph Ransohoff, M. D. of Cincinnati; P. L. Myers, M. D. of Toledo, and S. S. Halderman, M. D. of Portsmouth, to fill the Committee on Admissions.

Dr Ransohoff moved that the secretary be authorized to employ a stenographer to report the transactions. Carried.

Upon motion of the secretary visiting members of the profession from Indiana and Kentucky were given the privileges of the floor during the scientific sessions.

The president appointed as Committee on Nominations, J. E. Cook, M. D. of Cleveland; R. B. Hall, M. D. of Cincinnati; C. O. Dunlap, M. D. of McArthur; A. F. McVety, M. D. of Toledo; and N. R. Coleman, M. D. of Columbus.

A paper, "Glandular Fever," was read by J. Park West, M. D. of Bellaire.

A paper, "Hypertrophy of the Prostate Gland," was read by H. J. Whitacre, M. D. of Cincinnati. It was discussed by L. B. Tuckerman, M. D. of Cleveland; Joseph Ransohoff, M. D. of Cincinnati; A. I. Carson, M. D. of Cincinnati; F. F. Bryan, M. D. of Georgetown, Ky., and the discussion closed by Dr Whitacre.

A paper, "A Successful Case of Porro-Cesarean Section for Placenta Previa Centralis," was read by William J. Gillette, M. D. of Toledo. It was discussed by E. G. Zinke,

M. D. of Cincinnati; J. F. Baldwin, M. D. of Columbus; Otho Evans, M. D. of Franklin; W. H. Humiston, M. D. of Cleveland; R. B. Hall, M. D. of Cincinnati; G. H. Colville, M. D. of Circleville; Edwin Ricketts, M. D. of Cincinnati; F. F. Lawrence, M. D. of Columbus, and the discussion closed by Dr Gillette.

A paper, "The Pre-tubercular State," was read by W. S. Philips, M. D. of Belle Center. It was discussed by B. F. Lyle, M. D. of Cincinnati; J. A. Thompson, M. D. of Cincinnati; G. H. Colville, M. D. of Circleville; J. A. Kimmell, M. D. of Findlay; P. E. Cromer, M. D. of Piqua; S. P. Kramer, M. D. of Cincinnati, and the discussion closed by Dr Philips.

A paper, "Epigastric Pain," was read by Henry W. Bettmann, M. D., of Cincinnati. It was discussed by U. H. Hon, M. D. of Bloomington, Ind., and the discussion closed by Dr Bettmann.

A paper, "The Importance of the Early Recognition of Abdominal Infections," was read by W. D. Hamilton, M. D. of Columbus.

A paper, "A Limited Number of Observations on the Treatment of Pneumonia with Serum," was read by Joseph Eichberg, M. D. of Cincinnati.

The Committee on Admissions made a partial report, and the men whose names were reported on favorably by the Committee were, by motion, elected permanent members of the Society.

A paper, "House to House Operating," was read by E. C. Brush, M. D. of Zanesville. It was discussed by Edwin Ricketts, M. D. of Cincinnati; S. S. Halderman, M. D. of Portsmouth; W. H. Humiston, M. D. of Cleveland; J. A. Thompson, M. D. of Cincinnati; H. F. Lorimer, M. D. of Jamestown; Robert Carruthers, M. D. of Cincinnati, and the discussion closed by Dr Brush.

The Society then adjourned to 8 p. m.

EVENING SESSION, WEDNESDAY, MAY 8

The address in medicine was delivered by Frank Billings, M. D. of Chicago. The title of his address was "The Limitations of Medicinal Therapeutics." On motion a rising vote of thanks of the Society was extended to Dr Billings.

The Society then adjourned to an informal smoker given by the Committee of Arrangements.

THURSDAY, MAY 9, MORNING SESSION

The Society was called to order by President Bain at 9 a. m. The minutes of the previous meeting were read and approved.

A communication from the Marion County Medical Society in regard to the standing of one permanent member was read and referred to the Committee on Ethics.

A communication from the Pediatric Society asking for organic union with the State Society as a section of the State Society was read and referred to the Executive Committee.

A paper, "A Rapid Dilation of the Eustachian Tube; With Report of Cases," was read by C. P. Linhart, M. D. of Columbus and discussed by C. S. Means, M. D. of Columbus.

A paper, "The Cardiovascular System in Interstitial Nephritis," was read by W. J. Conklin, M. D. of Dayton.

A paper, "Albuminuria for Sixteen Years Without Perceptible Impairment of Health," was read by P. Maxwell Foshay, M. D. of Cleveland. It was discussed by E. F. Wilson, M. D. of Columbus and Frank Warner, M. D. of Columbus, and the discussion closed by Dr Foshay.

A paper, "The Morbid Anatomy of Epilepsy; Being a Summary of the Results in One Hundred and Thirty Autopsies," was read by A. P. Ohlmacher, M. D. of Gallipolis, and was discussed by L. B. Tuckerman, M. D. of Cleveland.

E. J. Wilson, M. D. of Columbus, offered the following

resolutions in reference to the work of the pathologic department of the Ohio Hospital for Epileptics:

"Whereas, the work that has been done in the pathologic laboratory of the Ohio Hospital for Epileptics has been of such a character as to attract the attention and receive the commendation of the profession in this and other States,

And whereas this work was inaugurated and the expense incident to carrying it on has been borne by the State, thereby giving our great commonwealth the proud distinction of aiding in the work of scientific medical research,

Resolved: That it is the sense of this Society that liberal provision should be made by the General Assembly for the maintenance and extension of this important work.

Resolved: That we heartily commend the Governor of this State, George K. Nash, for his broad-minded statesmanship in giving this scientific work his cordial support.

Resolved: That a committee of five be appointed by the president to present these resolutions to the Governor, and to confer with him upon measures which may secure the continuance and enlargement of this work and remove it from all danger of political interference."

On motion the resolutions of Dr Wilson were adopted.

A paper, "Why is the Present Epidemic of Smallpox Likely to Continue?" was read by W. C. Chapman, M. D. of Toledo. It was discussed by J. A. Kimmell, M. D. of Findlay; Byron Stanton, M. D. of Cincinnati; Y. Stephenson, M. D. of Georgetown; P. D. Covington, M. D. of Bellefontaine; C. S. Evans, M. D. of Cincinnati; B. F. Lyle, M. D. of Cincinnati; S. S. Thorn, M. D. of Toledo; P. L. Myers, M. D. of Toledo, and the discussion closed by Dr Chapman.

A paper, "The Prevention of Typhoid Fever in Villages and on Farms," was read by C. O. Probst, M. D. of Columbus. It was discussed by Frank Warner, M. D. of Columbus, and the discussion closed by Dr Probst.

A paper, "Some Experience with Chloride of Gold and Sodium," was read by John E. Sylvester, M. D. of Wellston.

A paper, "How the Medical-Practice Act in Ohio Can be Most Efficiently Enforced," was read by N. R. Coleman, M. D. of Columbus, and was discussed by N. F. Hussey, M. D. of Sydney; Lester Keller, M. D. of Ironton; and D. R. Silver, M. D. of Sidney. On motion this discussion was postponed until the afternoon session and the Society adjourned to 1:30 p. m.

THURSDAY, MAY 9, AFTERNOON SESSION

The Society was called to order at 1:30 p. m. The minutes of the previous session were read and approved.

President Bain appointed the following members as the committee to confer with the Governor in reference to the scientific work at the Ohio Hospital for Epileptics: P. Maxwell Foshay, M. D. of Cleveland; E. J. Wilson, M. D. of Columbus; C. S. Hamilton, M. D. of Columbus; J. C. Culbertson, M. D. of Cincinnati; and J. C. Reeve, M. D. of Dayton.

The discussion of Dr Coleman's paper was resumed by Frank Winders, M. D. of Columbus, and the discussion closed by Dr Coleman.

The report of the treasurer was read by James A. Duncan, M. D., and, on motion, was referred to the Finance Committee.

TREASURER'S REPORT

Receipts:		Dr.	Cr.
Balance		$136.67	
Initiation Fees		117.00	
Membership Dues		1550.00	
Legislative Fund		95.00	
O. S. Eclectic Ass'n	$ 31.50		
Homo. Med. Society	63.50		
Disbursements:			
Dr J. A. Thompson, Secretary			$225.06
Salary	$125.00		
Printing and Stationery	56.88		
Postage	41.50		
Express Charges	1.68		

Dr Jas. A. Duncan, Treasurer.....		$306.41
Salary	$125.00	
Printing and Stationery.....	37.25	
Postage	41.00	
Freight and Express Charges.....	95.66	
Premium, Surety Bond.....	7.50	
Dr P. M. Foshay, Editor.....		$108.95
Salary (1899)	$100.00	
Postage	8.95	
Legislative Committee		$381.00
Dr L. B. Tuckerman.....	$122.75	
Dr N. R. Coleman.....	100.00	
Dr N. P. Dandridge.....	155.40	
Dr C. F. Clarke.....	2.85	
Dr F. D. Bain, President.....		$ 25.00
Printing and Stationery.....	$ 13.00	
Postage	12.00	
Dr F. Warner, Ex. Com.....		$ 60.00
Postage	$ 60.00	
Stenographic report, con. 1900.....		$ 50.00
Publication, Transactions		568.50
Central Traffic Association.....		11.00
J. J. Noland.....		25.00
E. Ackers, Assistant Treasurer.....		25.00
H. S. Jones, Assistant Secretary.....		10.00
Balance on hand.....		102.75
	$1898.67	$1898.67

Correct: May, 1901.

Respectfully,

JAMES A. DUNCAN, Treasurer.

STATEMENT JOINT LEGISLATIVE COMMITTEE

Expense		$225.25
Proportion Ohio State Med. Soc., 3/7 paid	$92.25	
Proportion Homeop. Med. Soc., 2/7 paid.	63.50	
Proportion Eclectic Med. Soc., 1/7 paid...	31.75	
Proportion Physio. Med. Soc., 1/7 due....	$31.75	
Ohio State Med. Soc. Legislative Committee:		
Dr L. B. Tuckerman.....	$67.00	
Dr N. P. Dandridge.....	61.50	

The report of the secretary was read and ordered filed.

SECRETARY'S REPORT

At the fifty-fifth annual meeting at Columbus in 1900, 83 permanent members were elected. Notices of the death of the following named members have been received since the last report: P. N. Adams, Dayton; H. P. Wagner, Delphos; C. P. Judkins, Cincinnati; R. J. Wenner, Cleveland; D. H. Brinkerhoff, Fremont; Samuel Downs, Waterville; S. B. Lusk, Waynesfield; Andrew J. Murbach, Archbold; H. S. Bevington, Sulphur Springs; Geo. W. Butler, Columbus; Lee Corbin, Dayton; T. W. Gordon, Georgetown; H. J. Herrick, Cleveland, and A. E. Hoeltge, Cincinnati. One member, S. Belle Craver, of Toledo, has resigned. Adding to this list the usual losses in membership from nonpayment of dues and removals, and deducting the total from the number of new members elected, the result will show a very small gain in membership. Our list of permanent members corrected up to date includes 896 names.

Of the auxiliary medical societies reported in bad condition last year two, the Pickaway County and Portage County, have died and have been erased from the secretary's list. Two others, the Ashland County and Champaign County are moribund. There are several other societies whose secretaries do not answer letters even when addressed stamped envelopes are enclosed for replies, and I am unable to learn anything of their condition. The growth of the state society depends largely on the prosperity of the local societies. The proposed reorganization of the profession in the United States through the American Medical Association is to be based on the county or district society as a unit. It is probable that the reorganization of the profession in Ohio along this line will be accomplished in the near future. It would be the part of wisdom for the society to instruct our committee on Growth and Prosperity to undertake the

work of organizing county or district societies where no active local organizations now exist.

At the last meeting no action was taken on the suggestion of a constitutional amendment to define the status of men who have forfeited their membership for nonpayment of dues. Some wish to again become members of the society and have their membership date from the original application. To provide for these cases I would suggest the following addition to Article III, Section 3: "Former members who have forfeited their membership by failure to pay dues may be reinstated, their readmission having been recommended by the Committee on Admissions, by paying to the treasurer all delinquent dues."

On the motion of Dr Hall the constitutional amendment proposed by the secretary was unanimously adopted.

The report of the Publication Committee was read, and on motion adopted.

REPORT OF THE COMMITTEE ON PUBLICATION

"The Committee on Publication met on May 8, 1901, and opened bids for the printing of the Transactions of the Society for 1901. The bid of J. B. Savage of Cleveland was found to be lowest, and the Committee recommends its acceptance.

"The Committee recommends the reappointment of Dr P. M. Foshay as editor of the Transactions, and recommends the payment of the usual compensation of the editor —$100.00."

The report of the Committee on Legislation was made by J. A. Kimmell, M. D. of Findlay.

The report of the Committee on National Legislation was read by L. B. Tuckerman, M. D. of Cleveland.

REPORT OF THE COMMITTEE ON NATIONAL LEGISLATION

"Gentlemen of the Ohio State Medical Society:

"After the meeting of the State Society last year your committee sent a personal letter to each Ohio Senator and Representative informing him of the action of the Society respecting the various medical and sanitary measures pending before Congress. Favorable replies were received from both the Senators and the majority of the Representatives. While the army reorganization bill was pending your committee communicated by telegram with Senator Hawley, Chairman of the Senate Committee, urging that the bill be modified in accordance with the wishes of the medical profession as expressed in the resolutions of the various medical associations and in the action of the national legislative conference last year. This was at the request of Dr H. L. E. Johnson of Washington, D. C., Chairman of the National Legislative Committee of the American Medical Association, who was upon the ground keeping vigilant watch upon the progress of legislation. While in the army reorganization bill we did not secure all that we asked for in behalf of our *confrères* in the service, more was secured than would have been if we had not asked for anything, and the bill as passed is in such shape as to be readily amended so as to give all that we need or ought to ask.

"The second annual meeting of the Conference was held in Washington February 21-22 on call of the chairman, Dr H. L. E. Johnson. It was drawing near the close of the session of Congress, and a very important measure, from a sanitary standpoint, a measure extending the quarantine powers of the Marine Hospital Service in certain very necessary respects, had not as yet become a law. It had passed the Senate, and had been recommended by the Committee on Commerce for passage in the House, but it was feared that unless attention were called to its urgency in some emphatic way it might be lost sight of in the hurry of closing and fail of passage. Moreover, in the bill codifying the postal laws which had passed the House there had been smuggled in a clause cutting off from weekly journals access to the mails at the liberal rates heretofore granted, a change which would entail a serious extra expense on the American Medical Association Journal should the bill pass

the Senate in its present form. There were present delegates from fourteen States and the District of Columbia. The States represented were as follows: Askansas, Connecticut, Kentucky, Maryland, Michigan, Minnesota, New York, North Dakota, Ohio, Pennsylvania, Texas, Washington, West Virginia and Wisconsin. Action was taken on the postal bill and the quarantine bill, and committees were appointed to wait on members of the House and Senate to acquaint them with the views of the medical profession as expressed by the conference. Assurances were received from several Senators that the objectionable clause in the postal bill would be stricken out, and the Monday after the conference adjourned the quarantine bill became a law. The chairman, Dr H. L. E. Johnson, reported that owing to the work of the committee very largely, the antivivisection bill was to all appearances permanently disposed of. It was very doubtful whether, if introduced again, it could be pushed as far as it had been. Many who had signed the petition for it had done so under misapprehension and had withdrawn their support, and since the medical profession as represented in the American Medical Association and the affiliated State Societies has had an accredited committee in Washington, it has become increasingly difficult for unauthorized medical cranks to air their personal notions in the guise of the opinion of the medical profession.

"Work was laid out for the next meeting of the conference by the appointment of Surgeon General Geo. M. Sternberg, U. S. A., chairman of a special committee to frame an Army Medical Bill embodying the views of the profession as already expressed. Drs Emil Amberg of Michigan, John B. Roberts of Pennsylvania, and H. M. Bracken of Minnesota were appointed to devise some practicable plan of securing reciprocity of medical licenses between the States, based upon a uniform standard of qualification. In order to secure a fuller representation of the States in the conference next year, Drs L. B. Tuckerman of Ohio, C. R. Shinault of Arkansas, and W. P. Goff of West Virginia were appointed a committee on organization. A letter has been sent to the president and secretary of the medical society in each of the States not represented in the conference urging that the State Society at its next regular meeting make provision for such representation. Favorable replies have already been received from Colorado, Georgia,

Illinois, Iowa, Louisiana, Massachusetts, Montana, Nebraska, Virginia and Wyoming.

The meeting of the conference a year ago occurred at the time of the Triennial Congress of American Physicians and Surgeons, and more than one of these who acted as delegates had come primarily to the Congress, attending the legislative conference only incidentally. This year, however, there was nothing but the conference, and yet there were more States represented than last year, and the conviction among the delegates was even stronger that this Legislative Conference has before it a very useful future in prompting Congress to wise medical and sanitary legislation, and in promoting harmony of action among the several States.

The following are the expenses of the committee:

Traveling expenses	$39.10
Telegrams	4.20
Stenography and postage	20.03
Total	$63.33

Respectfully submitted,

L. B. TUCKERMAN,

Committee on National Legislation."

On motion the report was received and ordered filed.

P. Maxwell Foshay, M. D. of Cleveland, moved "That the President appoint a committee of three on 'Reorganization' which shall be empowered to consider plans and methods of perfecting the organization of the medical profession of Ohio and shall be instructed to report at the meeting of 1902." Motion carried.

ELECTION OF OFFICERS

The Society next proceeded to the election of officers. W. H. Humiston, M. D. of Cleveland nominated W. C. Chapman, M. D. of Toledo for president. The nomination was seconded by W. D. Haines, M. D. of Cincinnati, and J. E. Cook, M. D. of Cleveland. T. A. Reamy, M. D. of

Cincinnati nominated E. C. Brush, M. D. of Zanesville for president. The nomination was seconded by Dr Callihan and J. C. Crossland, M. D. of Zanesville. The president appointed as tellers D. W. Steiner, M. D. of Lima; B. F. Blair, M. D. of Lebanon, and L. M. Greene, M. D. of Wilmington. Dr Brush having received the majority of the votes cast was declared elected president for the ensuing year. Dr Chapman moved that the election be made unanimous. Motion carried.

The report of the Committee on Nominations was read by J. E. Cook, M. D. of Cleveland, and on motion was adopted and the men named declared elected to the respective offices for the ensuing year.

REPORT OF THE COMMITTEE ON NOMINATIONS

First Vicepresident—E. Gustav Zinke, M. D. of Cincinnati.
Second Vicepresident—S. S. Halderman, M. D. of Portsmouth.
Third Vicepresident—J. C. M. Floyd, M. D. of Steubenville.
Fourth Vicepresident—W. S. Philips, M. D. of Belle Center.
Secretary—P. Maxwell Foshay, M. D. of Cleveland.
Assistant Secretary—
Treasurer—James A. Duncan, M. D. of Toledo.

COMMITTEES

Finance—J. C. Oliver, M. D. of Cincinnati.
Ethics—F. W. Blake, M. D. of Columbus.
Publication—J. Snodgrass, M. D. of Kenton.
Legislation—T. C. Martin, M. D. of Cleveland.
National Legislation—L. B. Tuckerman, M. D. of Cleveland.
Admission and Medical Societies—Thos. M. Wright, M. D. of Troy.
Growth and Prosperity—P. J. Kline, M. D. of Portsmouth.

Committee on Nomination,
J. E. Cook, M. D.
N. S. Coleman, M. D.
R. B. Hall, M. D.
A. H. McVety, M. D.
C. O. Dunlap, M. D.

Dr Brush, the president-elect, made a short address.

Ladies and Gentlemen:—You have certainly made the twenty-third anniversary of my membership in this Society a very happy one, and I appreciate very much the honor which you have conferred upon me. I also appreciate the fact that the honor brings great responsibilities. I do not expect of course to preside over you with the suave dignity of Frank Bain, but I assure you I will do the best I can. I again thank you very much.

The annual presidential address was then delivered by Frank D. Bain, M. D., President.

A paper, "Laryngectomy," was read by G. W. Crile, M. D. of Cleveland.

A paper, "Ovarian Pregnancy: Is it an Explanation of Ovarian Hematoma?" was read by N. Stone Scott, M. D. of Cleveland.

The annual address in surgery, "A Surgical Operation," was delivered by John A. Wyeth, M. D. of New York. Frank Warner, M. D. of Columbus, moved that a vote of thanks be tendered Dr Wyeth. Carried.

A paper, "The Prevention of Pelvic Disease Before and During Puberty," was read by W. H. Humiston, M. D. of Cleveland.

A paper, "The Prevention of Pelvic Disease After Marriage," was read by Rufus B. Hall, M. D. of Cincinnati.

A paper, "The Prevention of Pelvic Disease During and After Labor," was read by J. F. Baldwin, M. D. of Columbus.

These three papers were discussed by C. L. Bonifield, M. D. of Cincinnati; W. J. Gillette, M. D. of Toledo; S. S. Thorn, M. D. of Toledo; U. H. Hon, M. D. of Bloomington, Ind; Y. Stephenson, M. D. of Georgetown; D. W. Steiner, M. D. of Lima; Edwin Ricketts, M. D. of Cincin-

nati, and the discussion closed by Drs Baldwin, Humiston and Hall.

The Committee on Admissions made a partial report, and the men whose names were recommended were, on motion, elected permanent members. The Society then adjourned.

FRIDAY, MAY 10, MORNING SESSION

The minutes of the previous session were read and approved.

The President appointed as the Committee on Reorganization of the State Society, P. Maxwell Foshay, M. D. of Cleveland; J. S. Beck, M. D. of Dayton, and H. J. Whitacre, M. D. of Cincinnati.

On motion of the Secretary, the Secretary-elect, President-elect, and Chairman of the Committee of Arrangements for the ensuing year, were authorized to fix the time of the next meeting.

On motion of the Secretary the Secretary-elect was authorized to issue delegate certificates to permanent members desiring to attend the American Medical Association.

L. B. Tuckerman, M. D. of Cleveland, offered the following resolution on the reorganization of the American Medical Association:

"Whereas, the enormous increase in the membership of the American Medical Association renders it increasingly difficult to transact the necessary legislative work of the Association in general session,

"Resolved: That we recommend that the delegates of the Ohio State Medical Society use their best endeavors to secure such an amendment to the constitution of the American Medical Association as shall transfer the business of the Association to a special section so constituted as to

fairly represent the several State Societies and scientific sections, and small enough to properly transact the business." On motion the resolution was adopted.

A paper, "Autotoxemia, with Cases," was read by W. W. Pennell, M. D. of Fredericktown.

A paper, "A Discussion of Cardiac Innervation; with Report of Cases," was read by C. F. Hoover, M. D. of Cleveland.

A paper, "Hospitals in Small Cities," was read by Lester Keller, M. D. of Ironton.

E. C. Brush, M. D. of Zanesville, A. H. Freiberg, M. D. of Cincinnati, and James A. Duncan, M. D. of Toledo, were appointed a Committee on Admissions.

E. C. Brush, M. D. of Zanesville, C. F. Hoover, M. D. of Cleveland, and A. H. Freiberg, M. D. of Cincinnati, were appointed to fill the Finance Committee.

The paper of Dr Keller was discussed by John E. Sylvester, M. D. of Wellston; W. W. Vinnedge, M. D. of Lafayette, Ind.; Joseph Ransohoff, M. D. of Cincinnati, and the discussion closed by Dr Keller.

The Committee on Admissions made a partial report, and the men whose names were reported favorably by the Committee were elected permanent members.

The Finance Committee submitted the following report:

"Mr President:

The Finance Committee has audited the Treasurer's books and finds them correct.

The Committee recommends that the dues for the ensuing year be two dollars.

E. C. BRUSH,
Acting Chairman."

A paper, "A New Method for the Painless Removal of Hemorrhoids," was read by Thos. Chas. Martin, M. D. of

Cleveland, and discussed by Lester Keller, M. D. of Ironton.

A paper, "To What Extent May We Hope By Treatment to Delay the Progress of Cataract?" was read by C. F. Clark, M. D. of Columbus.

A paper, "The Treatment of Traumatic Strictures of the Esophagus," was read by Frank E. Bunts, M. D. of Cleveland.

A paper, "Abnormal Conditions of the Foot as the Cause of Knee Pains," was read by A. H. Freiberg, M. D. of Cincinnati.

A paper, "Acute Poliomyelitis in the Adult," was read by D. I. Wolfstein, M. D. of Cincinnati.

A paper, "The Significance of Laceration of the Cervix Uteri," was read by Chauncey D. Palmer, M. D. of Cincinnati.

A paper, "Cystic Tumors of the Pancreas," was read by Joseph Ransohoff, M. D. of Cincinnati.

A paper, "Professional Practice and Morals in Relation to Life Insurance," was read by W. W. Vinnedge, M. D. of Lafayette, Ind.

E. C. Brush, M. D. of Zanesville moved that a vote of thanks be extended by the Society to the profession in Cincinnati and the local Committee of Arrangements, and especially to Dr Zinke, for the pleasant and profitable entertainment the Society had enjoyed. Motion carried.

The President, Dr Frank D. Bain of Kenton, in closing said:

I desire to express my personal thanks to the profession of Cincinnati, and especially to Dr Zinke and his Committee, for the magnificent way in which they have treated us.

I also wish to tender to Dr Brush my heartiest good

wishes for the meeting which is to take place in Toledo next year. Good-bye.

Dr E. Gustav Zinke of Cincinnati, Chairman of the Committee of Arrangements, replied as follows:

I am sure that I only voice the sentiments of the Committee and of the members of the profession of Cincinnati, as well as the citizens, in saying to you that we feel that the best proof of the fact that our profession took an active interest in your entertainment is evidenced by the handsome subscriptions we obtained for that purpose. It is the first time that an enterprise of this kind in the City of Cincinnati has come out with a surplus. An enterprise with which I was connected a short time ago turned out differently. I am sure that we all feel thankful that everything has passed off as smoothly as it has, and I know we all feel better for your having been with us.

The President then declared the session closed *sine die*.

CHAPTER II—ADDRESSES

THE LIMITATIONS OF MEDICAL THERAPEUTICS

BY FRANK BILLINGS, M. D., CHICAGO

The successful application of remedies to disease has not kept pace with the immense advancement in the knowledge of pathology or of diagnosis during the last ten years.

The instruments of precision in diagnosis, and especially the microscope and the various reactions which may be obtained in the bacteriologic and chemical laboratories, enable one to separate and recognize the differences between the infectious fevers and various other diseases of organs and of the blood. Thus: typhoid fever, malaria, the plague, diphtheria, epidemic meningitis, cholera, epidemic dysentery, amebic dysentery, tuberculosis, gonorrhea, tetanus, and relapsing fever, may all be with certainty recognized, not only by the clinical course, but by the microscopic examination of the blood and of the exudates, transudates, etc., supplemented with laboratory, bacteriologic and chemical examinations. Of the various diseases not infectious in character, or at least not now recognized as infectious, and the general diseases which affect the blood especially, the present methods of examination enable us to more certainly diagnose and to separate the one from the other. For instance, the blood is now fairly well understood, so far as the morphology is concerned. We recognize ordinarily the primary and the secondary anemis; we differentiate the different types of leukemia; the modern methods of examination of the stomach enable one to recognize with reasonable certainty ulcer and carcinoma, and to differentiate them from the less severe chronic gastritis.

This great advance in our knowledge of the cause of

disease and the improved methods of examination which enable us to more certainly recognize and differentiate disease has had its influence on therapy. This influence, however, has been chiefly in the application of the principle of the production of an artificial immunity and at the same time the introduction into the body of curative antitoxins. We may be justly proud of the use of the antitoxin serum of diphtheria, of tetanus, of plague, of dysentery, of cholera, and of the antivenomous serum in intoxication due to wounds of poisonous serpents, in the cure and prevention of these several diseases. The application also of prophylactic fluids such as that of Haffkine for plague, and the use of a like preparation of fluid for other diseases has been followed with equally good results as compared with the serum treatment in the prevention of disease. These notable results justify the belief that we shall some day apply the same principle to the treatment of most, if not all, of the infectious diseases.

Until the discovery of these practically specific means of treating the infectious diseases, the only remedies that in any way resembled specific drugs in their effects were mercury and quinin. Empiricism taught us that mercury was almost uniformly curative of syphilis, and the specific action of quinin in malaria came in the same way. Even now the accurate knowledge which we have of malaria has enabled us to apply quinin to the relief of the infection more rationally and perhaps with better results than before.

The more exact knowledge we possess of the infectious diseases, and of the local and chronic disease processes of the body has enabled us to apply specific medication in a limited way only. If we add to this the drugs quinin and mercury, which empiricism has shown to be practically specific, it still leaves an immense field in medicine in which the application of curative drugs is based upon insecure grounds. The application of drugs in this field can never be exact. Therapeutic practice in consequence must vary, and

difference of opinion must arise in the future as it has in the past. It is to this field of therapy that I especially desire to direct your attention and to say something of its remedies.

For purposes of description I shall divide therapists into three classes to arrive at something definite concerning the limitations of medical therapy, and I shall take up the theories and practice of each one of these three classes.

In the first place I should name the nihilists in therapeutics. To this class belong those among us who are materialists in medicine. The man who works much in the dead-house and in the pathologic laboratory and sees with the naked eye or the microscope the morbid changes which occur in organs finds it hard to believe that these conditions can be removed or even modified by drugs. This belief is further strengthened by the fact that the infectious diseases are self-limited, and with the exception of malaria and syphilis have not been influenced in the past by the application of medicines. The surgeon, too, whose field of work is along mechanical lines, is apt to lose confidence in drugs as curative agents. His belief or faith in drugs is modified by his operative experience. The disease-processes, which in some instances his knife so readily removes, he finds it hard to believe may be much modified or even removed by the rational use of drugs.

He does not understand that the morbid changes do not kill, but that it is the result of the morbid changes upon the functions of the organs which is disastrous. As an example, chronic interstitial hepatitis rarely, if ever, of itself kills. The amount of liver-tissue left even in extreme atrophic hepatitis is enough to maintain life. The invalid dies because of toxemia due to the loss of the full modifying effect of the liver upon the food products which pass through it, or to the mechanical effects of the contraction of the cirrhotic tissue upon the venous radicals and the consequent injurious effect upon other organs and also upon the supervening dropsy. Every rational physician knows

that he may not modify the true cause, the liver cirrhosis, but that he may materially modify, by proper remedies, the toxemia and the venous stasis, and thus relieve suffering and prolong life.

Under the second class of therapists, I would place the theorists. The great majority of us practice under this head. The theorist treats symptoms or the disease, not the individual. He looks upon a disease or even a symptom alone as an entity, which is to be cast out by medication, as devils and evil spirits were in past ages cast out by incantation. He is an extremist, as much so as the nihilist. He looks for specific effects from drugs. Fever from all causes he fights with antipyretics, and is happy if the temperature is lowered by the drugs used, regardless of the natural course of the disease. Cough, whether of bronchial, of heart, or of nervous origin is combatted because it is a cough, and by similar remedies in all cases. A chill calls for quinin, whether due to pyogenic cocci, malarial plasmodia, or what not. Anemia calls for iron, whether it be due to malignant disease, faulty hygiene, or unknown cause.

This is the therapy of not only our own practicians but also that of the physicians, we are pleased to term "irregulars." These we hold up to ridicule because of the dogmas they maintain of the specific application of certain remedies to symptoms. Furthermore many of the books on materia medica and therapeutics are so arranged that after the exposition of the forms, preparations, and physiologic action of a drug, there follows a list of the various symptoms and diseases in which it may be used advisedly. This form of practice is still further stimulated in the present day by the elegant, palatable and sightly preparations which the manufacturing pharmacist presents to the practician.

In the commercial world the supply follows the demand of a commodity. In medical therapeutics, the rule has been reversed. Manufacturing chemists have in recent years furnished a supply, and at the same time attempted to

create a demand by keeping the products of their manufactories (I shall not call them laboratories) before the physicians. The mails loaded with samples and literature, including trade medical journals, and the busy visiting agent, have been potent means of doing this, as you all well know. To the busy country physician who must often compound his own prescriptions the preparations of the manufacturing pharmacist were a boon. For this aid and for the presentation of simple preparations in a presentable form, must we acknowledge thanks. But the manufacturing pharmacist ceases to be our helper when he attempts to present preparations in an elegant form when by so doing he renders them inert. Of what value are most of the tinctures and fluid extracts in the form of tablet-triturates? And if bad in simple form, how much worse if presented as a compound of two or more fluid preparations in a tablet, even if labeled the favorite prescription of some eminent practician, as a "heart tonic," "laxative," "antidyspeptic," "antipyretic," etc., etc. What two of the syrups, elixirs, pills and mixtures with copyrighted names which are presented as specific cure-alls?

The pharmacist assumes when he presents to us these compounds, which for all practical purposes are patented, that we do not know enough to prescribe. Yes, he even says we are not able to diagnose a disease, for upon the label are often printed the symptoms for which the compound is a specific. He uses the profession as middlemen with which to reach the public with his nostrums, and I am sorry to believe he has found us an easy mark.

The immoral effect of the multiplicity of these preparations upon the profession, because of the ease with which they may be used, is very great, much greater I fear than we appreciate. Not only does it result in unscientific, irrational, compound prescribing, but it stimulates the use of useless or inert drugs. Who can say what lives are not sacrificed by a reliance upon such preparations in emergencies? Who

will take the responsibility of prescribing them if he be fully alive to his responsibilities?

Let us give credit for all the manufacturing pharmacist has done for us. We want elegant, sightly, palatable preparations. Let him give them to us, but let it be in forms which will not lessen the virtue of the drug and in simple not compound preparations. Let us boycot every preparation which is copyrighted or patented, or presented under some trademark name. There will be no dearth of medicines which we may prescribe in lieu of the nostrums. Indeed it would be better for our patients were we to prescribe less, or if we must do so, to use remedies only which are recognized by the pharmacopea.

I would name the third class of therapists rationalists.

The practice of rational therapy is based upon a thorough knowledge of disease. This includes a knowledge of the pathology, the morbid anatomy, the clinical course, and the recognition of the disease by means of all the modern methods and means of diagnosis. Experience is necessary to make a rational therapist. One must have the opportunities to observe the natural course of disease. Books will not afford this. Hospitals give one the best opportunities, but in private practice in both the country and city abundant material is at hand to study the natural development and course of disease. He will make the best therapist who will use the means at his command to recognize the usual and unusual phenomena of disease. In addition to the organs which nature has given him, the physician has at his command, at comparatively little cost, the modern instruments of precision in diagnosis which may enable him to become very proficient in the recognition of disease processes.

The knowledge thus obtained grows very rapidly, and it is true I believe that the degree of acquaintance with disease bears an inverse ratio to the use of drugs. A knowledge of pathology and of morbid anatomy must teach one to use drugs sparingly and rationally. With a mental picture

before one of the morbid anatomy of a given disease, the rationalist does not attempt the frequently impossible removal of the disease; but does try to modify the future development of the process and the results of the disease upon the other important organs of the body.

In surgery, cleanliness has made operations possible upon almost every organ of the body. For years the surgeon used the so-called antiseptic drugs in an attempt to secure freedom from infection in operative wounds. It required a long period of time to teach the surgeon that drugs were not necessary, and that true cleanliness meant the use of pure water as an agent to purify operative fields, instruments and dressings.

In midwifery, too, the former horrors of the childbed have been removed by cleanliness. So true is this in both surgery. Just now the majority of us do not pay so much birth is looked upon as a grave blunder of operator, assistant, or nurse, in the matter of cleanliness.

In medicine cleanliness is just as important as in surgery and obstetrics that infection after operation or child- attention to it as we should. Medical cleanliness may be obtained, as in surgery, by the use of pure water as a drink, by the various forms of baths, mouth and throat washes, lavage of the stomach, colonic flushes, etc. These measures of cleanliness not only lessen the element of external and internal infection, but also modify the results of the infection or the intoxication from which the patient suffers, in consequence of some general infection or organic chronic disease. Cleanliness should extend, too, to supplying the patient with pure air and uncontaminated and unadulterated food. These hygienic measures may not be classed with drug therapy, but if practiced will have a definite relation to the use of drugs, inasmuch as it will be found less necessary to prescribe drugs, when medical cleanliness is practiced. The drugs which the rationalist will use in this event will be directed to an attempt to meet emergencies when

they arise in the course of the acute infections or with the object of forestalling a possible accident, which his experience of the clinical course of disease has taught him may occur. He knows that there is no drug which will shorten the course of the infectious diseases, with the exception of quinin in malaria and mercury in syphilis. This does not apply, of course, to the few specific serums. Unhappily these are still few in number. The principle of the antitoxin treatment has been finally established, and it is reasonable to hope that we may at no distant day command a specific treatment for all the acute infectious diseases, as we now do in diphtheria, the plague, tetanus, the intoxication due to the bites of venomous serpents, and probably also, cholera and epidemic dysentery.

In the local and chronic diseases rational therapy applies as in the acute infectious processes. Here a thorough knowledge of the morbid anatomy, of the clinical course, and of the interaction of organs and parts of the body, is absolutely essential to a rational therapy. Take for example a case of chronic interstitial nephritis. The treatment should be based upon the cardiovascular integrity, upon the total urinary excretion, and upon the nutritional condition of the patient. Empiricism has taught us to use in this form of chronic nephritis, digitalis, iron, and some form of saline diuretic, like acetate of potassium. These drugs are often united in a mixture, and too often does the unthinking physician prescribe them, when the diagnosis is established.

The rationalist would study the cardiovascular system, the urinary output, and the nutrition of the patient. If the balance were good, he would not prescribe drugs, but would establish a hygiene in the form of diet, water as a dilutent drink, proper clothing and general conduct of life, which would tend to maintain this balance of proper integrity of heart, urinary excretion, and bodily nutrition. If drugs were subsequently necessary he would give only such as were necessary to reestablish the proper balance. Perhaps digi-

talis would be necessary at one time, and iron, too, perhaps, should anemia occur, or if not iron some other hematinic. If water was not sufficient, perhaps a medicinal diuretic would be prescribed.

Thus the rationalist treats the individual and not the disease.

The time at my disposal will not permit me to give many examples which would further establish the principle of rational therapeutics. Nihilistic therapy is not justified by the experience of the past nor by present knowledge in both private and hospital practice. Nihilistic therapy and the symptomatic drug treatment of the theorist are opposite extremes of practice. Both are wrong and both are supported by ignorance—a want of knowledge of a different kind it is true. Clearly there is a marked limitation in drug-therapy, but still there is a drug treatment which if rationally applied will be of much aid to the physician in combatting disease and in alleviating human suffering.

Address of the President

FRANK D. BAIN, M. D., KENTON

Gentlemen of The Ohio Medical Society: I desire to congratulate you today upon this very large and representative assembly of medical men. It is a good omen for medical progress in our fair state for the new century. The coming together for scientific medical research of such a throng of members of our great profession should have its effect in moulding public opinion in regard to the making of good wholesome laws for the betterment of our entire state.

We have a solemn duty to discharge, one that we must not shirk, and that duty is to uphold the arms of those who are charged with dispensing the present medical laws. I refer to our very efficient Board of Medical Registration and Examination, and one very effective manner for us to

perform that duty is to show our allegiance to them by identifying ourselves with this our State Society.

I am credibly informed that nearly seven thousand legalized physicians of our school are practicing medicine in the state of Ohio. Not quite one thousand of that number are members of this Society. I wish to appeal to the six thousand who are toiling in the profession to come with us and swell our numbers; so that our walls may be strengthened; so that their own professional standing may be greater; so that by a commanding representation of medical men we can have enacted more stringent medical laws; so that the petty annoyances that harass them almost weekly, by the advent of some mountebank of a traveling doctor, may be speedily abated; so that their own environment will be freed; and so that they may justly receive what is theirs by right.

The affiliation of medical men of the villages and towns as well as of the cities, with the State Society, would go a long way towards clearing up the atmosphere as to *who* is entitled to practice medicine in our state, and until a much larger number of the legalized practicians do this you can look for our present laws to be constantly menaced, and for the adherents of osteopathy and the other unworthy pathies to be constantly upon the alert to break in and steal good medical business.

Is it not our own fault that we are so hemmed about as we are? We look back now with alarm at the thought of how very near victory was wrested from us in the passage of our late medical bill; but for the combined and almost superhuman effort of a very few men who stood like a stone wall for the right, we would today be overwhelmed with laws that would be inefficient.

I am astounded that more interest has not been taken in the past by medical men in the banding together for their mutual good and protection. With a State Medical Society of three or four thousand members, who are earnestly seeking after what is theirs by right, there is no power

from the lake to the Ohio river that could or would prevent us from attaining all we would ask for or demand in the way of wholesome legislation. By so doing we would confer upon our great state laws that would benefit many thousands who are annually swindled by these men who have no conscience or moral integrity. These splendid sessions are, I hope, but a forecast of better days for the medical profession of Ohio.

Gentlemen, a subject to which I have given some thought, and one that, in my opinion, should receive at your hands some kind of recognition, is the representation of the state and district medical bodies to the American Medical Association. Those of you who have attended the meetings of the American Medical Association the past few years, know what a large and unwieldy body it is, as it is now constituted, and how important it is that the business of this distinguished medical association should be done by this great body of American physicians with more dispatch. To that end I would suggest that the working body of the American Medical Association be made a smaller representative body; that the different State Societies be entitled to one delegate to each four or five hundred of its membership, with alternates; and that the president of each State Society be also an accredited delegate; that the business of the American Medical Association be entrusted into their hands. That the delegates from the different State Societies to the American Medical Association be elected, or selected, in a proper manner by these different bodies. Such a body of medical men would represent very fairly the profession of our progressive country, and the politics of the American Medical Association, which is such an evil to the association, would be, in a measure, eliminated.

Gentlemen, in delivering an address like this, I take it that great latitude can be indulged in by the speaker, and that is the reason I refer to the following—a question in which we are all more or less interested: What should be

the attitude of the religious press in regard to the printing of objectionable medical advertisements?

We must admit at the very outset that the religious press exists, and that their influence is for the betterment of mankind. Some one has said that the *good* influence of the religious press of our country greatly overshadows the influence for good of all the secular press combined. We will grant that every community is better for the truths that are disseminated in their midst, and the elevating tendencies of the Christian papers that come into all our homes. The Christian truths sent broadcast weekly through these agencies cannot be measured, and the high personal and professional standing of the editors of these religious papers is above reproach. These papers are the mouthpieces of the great Christian denominations of our fair land, and it is difficult to believe that they would engage in any work that would even contribute in a small degree to neutralize the good their columns contain each week; but since I have devoted some time and careful examination to the phase of medical advertisements contained in these Christian weekly newspapers, I have been amazed at the grossness of many of these advertisements.

I have taken the time to make a collection of twenty-five of the leading and most influential religious weekly papers of the United States, and have searched them very carefully and can, without fear of contradiction, testify to you today that, without exception, every one of these papers publish in their columns every week objectionable, very objectionable, or positively injurious, medical advertisements. Bold and untrue statements of cures that you know and I know are false, and is it too forcible to assert that the editor knew it was false when it appeared in the paper. The conspicuous display of these objectionable advertisements in these widely circulated weekly Christian journals that come to your home and mine is, I claim, wrong both in principle and in fact; and is it not a pertinent question to ask, what kind of relation should the religious press have to the medi-

cal world as regards the publishing of medical advertisements? The great good set in motion in the religious weekly paper should not be counteracted by fatuous influence of anything contained in its columns. When burning truths are told by these writers, is it not a little surprising that possibly upon the very next page is an advertisement calling special attention of the same reader (who has been deeply impressed by the beauty of the truths displayed a moment before) to the fact that "cancer is cured by soothing oils?"

I have never yet been able to fully comprehend how these two articles, one filled with trenchant truth and the other absolutely false, do not conflict. The former we perhaps believe with all the fervor of a true devotee of the truth, but the latter, looking at it with as much intelligence as the editor at least, we firmly believe is not truth. Can you imagine how these college-bred editors, and the large majority of them with theologic training, can reconcile the publication of these quack advertisements with their ideas of truth and integrity?

The average editor, no doubt, would meet some of the objections raised to this class of advertisements by claiming that the business department of his paper is far separated from the editorial and religious portions; some others might seek to excuse themselves by the plea that there is *some* truth in these advertisements. Grant the latter, then my judgment would be to have an invoice of their columns to separate what little wheat might be among so much chaff. I cannot but think if the Christian editor of the great religious paper of our church would have pointed out to him the positive untruths published of cures that are exploited in his paper weekly, and draw his earnest attention to the numerous other religious papers that print similar advertisements that are on the same plane of worth as are his, he could not but see how strangely inconsistent was his position.

We readily grant that all religious papers try at least

to disseminate truth and stamp out falsehood, yet by some strange mode of business they permit in fifty-two issues of their paper every year, and manifestly encourage, and may seek after the publication of so-called cures for multitude of diseases, that they themselves know, or should know, are incurable; that many of the diseases announced in the columns of these papers as curable, are benefited only under the most conscientious medical and surgical care and treatment.

Why, then, are the columns of these religious papers so sought after by the proprietors of these fake cure-all medicines? Because of the very high standing for truth exhibited by the record of these papers among their thousands of readers. The business acumen of these advertisers of empiric medicine, who offer to the Christian press their marvelous cures for publication, is very significant; for these men know that far greater financial return will come to them by paying for space in these papers.

Gentlemen, you would be amazed to read the bold statements that appear every week in the religious press of our country. In conversation with a clerical friend not long since this subject of objectionable medical advertising in the Christian press was talked of. My friend said "Doctor, I can name you at least two prominent weekly papers of my denomination that are absolutely free from all quack advertisements." He named them, turning over the pages of one of these papers he named. The first medical advertisement I found there I read to my friend; it was this: "Locomotor Ataxia conquered at last;" this in a very conspicuous place and so glaring that my friend admitted "that something was radically wrong with the management of any religious paper that would publish such *stuff*."

The benefit that accrues from these so-called cures, because one person in fifty *seems* to be benefited, is no reason why hundreds of others will receive any benefit therefrom; and while they are taking this cure or another much valuable time is lost that the patient might be applying to

the trained diagnostician and be permanently cured by rational and intelligent medicine.

Do you think that the editor of the Christian newspaper of today realizes the harm the publication of these vicious advertisements is doing to the readers of his paper? We know that over this broad land of ours there are thousands of good people who suffer from diseases, imaginary or real, who are averse for many reasons to consulting a physician, and who are very cautious of accepting the truth of an advertisement of a medicine in a secular paper; but when they read the same advertisement in their church paper, the paper that directs their steps in religious matters, when, I say, they see this cure boldly advertised in their church paper they decide immediately that if their church paper publishes it, it is absolutely true, and because it is true the church paper publishes it.

Their minds are so bound up in the supreme truthfulness of the contents of their church paper that no argument could change their mind—nothing, I take it, but the words of the great and good editor who would say that *that* advertisement was published without his knowledge.

I can think of so many dangers to the unsuspecting reader whose reliance is so fixed upon the perfect truthfulness of their religious papers. We know the very early diagnosis of carcinoma, and the proper treatment therefor, is eminently essential to recovery. A timid bashful woman has thought for a while that she has some hidden disease that she will not reveal the nature of to any one. Her thoughts by day and dreams by night are of her physical condition. She, in the perusal of her weekly Christian paper, comes across the flaming advertisement of a remedy that will cure her disease, and in her anxiety she resolves that here is a medicine that will bring her back to health; an illustrated book is sent her upon request. This confiding woman spends valuable time that is weighted with golden hours to her in following out the specific directions for her recovery; and only after months she finds that

time, that was such an important factor in her case, has been uselessly spent, and the trained specialist who examines her case tells her family that the time has passed when an operation would be of any benefit.

May I ask if the insertion of that medical advertisement which this confiding Christian woman found in her religious paper is not in a measure responsible? Not so flagrant are those advertisements that deal with "blood-medicine" and so-called "catarrh cures," but in many of these religious papers are to be found the astonishing cures for locomotor ataxia, tuberculosis in all stages, cures for rupture and for fits; when, if the editors would inform themselves, as I believe they should, they would exclude from the columns of their papers such advertisements as are absolutely false, and cease to be a party to obtaining money from their unsuspecting readers through false pretenses.

I believe, gentlemen, the time has come when we, as medical men, should use our influence to prevent people from being fleeced by the alluring medical advertisements that appear in the Christian papers, as we should do in other channels.

Truth is assuredly the most sacred of qualities, but is there a moiety of truth contained in the advertisements spoken of? A writer has said "an untruthful business matter should receive no publicity from journals dedicated to the cause of truth." Editors of religious papers by their scholarly training should know that the pretense to cure the multitude of diseases stated in their papers is unwarranted, and looking at it from our standpoint there is nothing left for us but to judge that the reason for the appearance of these vicious advertisements is a misguided and blunted sense of the truth.

Dr John V. Shoemaker in the December number of the *Medical Bulletin* speaks very pointedly of the inconsistency of the religious press regarding the publication of corrupt advertisements, and tells us in that article many

truths that should be read, especially by the editors of our great religious press. His ground is well taken when he states "there is quackery in law and theology as well as medicine. The reason why quackery is associated in the mind particularly or exclusively with the practice of medicine is, because the patent medicine vendor has here such a rich field for commercial profit." "Religion," he further says, "is built upon *faith*, but what kind of faith is that which will recommend, endorse, or have anything to do with a medicine so-called, the composition of which one knows literally nothing, and which the vendor, for mercenary purposes, keeps strictly a secret. Let religious editors, who are generally clergymen, ask themselves what they think of an arrant pretender in the pulpit?" There are at least two modern religious newspapers published today, one in the east and one in the west, that pride themselves upon special departments, and great care is taken that these special departments are kept up to a certain standard of excellence. One of these papers contains weekly statements of the current financial reports, and the other the correct insurance statements, directing their readers' attention in a special manner to these departments. I would like to ask if these religious papers that are so careful to keep in close touch with the financial and insurance world, should not exercise the same carefulness in regard to giving their readers clean and truthful reading upon the lines of reliable medical advice.

Gentlemen, if I have given you a thought in regard to the evils of objectionable, or positively injurious medical advertisements, as it prevails today in the religious press, I am satisfied.

ADDRESS IN SURGERY

A Surgical Operation

BY JOHN A. WYETH, M. D., NEW YORK

In that forbidden poem "Don Juan" which, by reason of its suggestiveness of forbidden fruit, we earliest read and longest remember, there are two lines which occur to my mind as applicable in the effort to describe a surgical operation.

"Nothing so difficult as a beginning
In poesy, unless it be the end."

A surgical operation does not begin with the actual technic nor does it end there. In the proper comprehension of the term it embraces that thorough knowledge of the patient's condition which leads to a correct diagnosis, indicates the most desirable method of operation, and the probable result or prognosis. It involves that careful study which a thorough knowledge of laboratory technic alone can give to the scientific investigator, helping him not only to select the proper anesthetic but to bring his patient to a proper condition of nourishment before submitting him to the shock of an operation. I would therefore consider, first, the preparation for the operation; second, certain features of the technic, and third, the postoperative management of the case.

Accepting as science does the phagocytic theory, it is evident that the defenders of the tissues, the leukocytes, should be in the best possible condition to resist the invasion of pathogenic germs, no matter what shape these may assume. No matter how perfect the operative technic, or how careful the aftermanagement of a given case may be, unless the surgeon has grasped fully the importance of the thorough preparation of his patient, he will fail to achieve the full measure of success; and although a thor-

ough practical knowledge of regional anatomy is essential to perfect technic, to which the most intelligent effort at asepsis should be added, it requires more than asepsis and the rapid and skillful use of the armamentarium to fulfill satisfactorily the obligations of the surgeon.

The chemical and microscopic, as well as bacteriologic, study of the urine should be a part of the routine work in the preoperative period. This cannot fail to give exact information as to the comparative integrity of all the organs in the urinary route, but it throws much light upon those not directly connected with this channel of excretion. In complicated or important cases the urine should be studied through several days, both as to quantity, keeping correct measurement of all that is discharged, and making different qualitative analyses under the varying conditions of rest and activity. Laboratory research points unfailingly to the presence of oxaluria, always a contraindication to a serious surgical operation for the reason that it is pathognomonic of a disturbed nutrition due to insufficiency of the digestive fluids, and what is true of oxalate of lime is also true (though in a milder degree) of an excess of uric acid in urine which has not been passed more than three or four hours.

Of minor significance, and yet not without considerable importance to a careful study, is the presence of indican or the indoxyl-sulphate of potassium, a product resulting from the decomposition of ingested albuminoids in the intestinal tract due to the presence of bacteria.

The clinical microscopy of the urine, in recognizing the various products which may be thrown down by the centrifuge, demonstrates the presence of crystals denoting ammoniacal decomposition with its suggestiveness of insufficiency of the bladder muscle, or of inflammation of this organ, or of a pyogenic process in the pelvis of the kidney, or in the substance of these organs. The epithelia from the various portions of the urinary route are often of importance in determining the location of the lesion. Various

bacteria, chiefly pyogenic, and at times the bacillus of tuberculosis, shown by proper methods of staining, not only point to a tuberculous process in the kidneys, but by segregation or urethral catheterization we may be led with unfailing accuracy to even a unilateral lodgment of these pathogenic organisms.

Shreds thrown off from the surface of neoplasms along the urinary route, spermatozoa, and last but not least in importance, the casts which come from the tubules themselves, are made clear to us by the laboratory technic. It teaches us that those of granular construction indicate a chronic or subacute inflammatory process in the substance of the kidney; the transparent or hyaline casts which have a graver significance since they are most frequently associated with chronic interstitial nephritis, and the waxy form which belong to chronic suppurative processes. Blood-casts tells us of hemorrhage in the kidneys and of acute inflammatory conditions. Those composed of pus-corpuscles suggest a serious surgical malady, pyelonephritis. Even when the presence of blood in the urine is in quantity so small and under conditions in which the corpuscular elements are destroyed and therefore not recognizable by the microscope, the chemical analysis will demonstrate the crystals of Teischmann which are brought out by adding a drop of strong acetic acid to a few drops of the urine placed upon a watch-glass.

Laboratory research not only teaches us the recognition of glycosuria, but still further it tells us whether the sugar discovered in the urine has a minor significance by being derived solely from the food under conditions in which the carbohydrate matter is not properly prepared for assimilation and is eliminated by the blood through the kidneys and discharged as waste material with the urine. Under other and graver conditions it shows the sugar in the urine to be the result not only of defective carbohydrate assimilation, but also of an abnormal disintegration of the tissues.

In a certain proportion of cases in which the grosser symptoms point to lesions of the stomach, or in which an exact knowledge of the quality as well as the quantity of the digestive fluids found in this organ are essential, clinical chemistry enables us to determine whether or not free hydrochloric acid exists in this organ, and by the known process of measuring the free acid in the stomach we can determine that the normal amount of proteid and carbohydrate digestion is present. The test breakfast of Ewald & Boas or that of Germain-See are simple processes of the laboratory, which the practical surgeon must understand and appreciate equally with the medical practician.

The presence of lactic acid in the stomach is entitled to a distinct diagnostic value, since it takes place in comparatively rare conditions, and since these conditions are seldom fulfilled except when carcinoma is present, for Boas goes so far as to insist that the persistent presence of this acid in noteworthy quantity during the digestion of a certain fixed diet, chemically free from lactic acid, is a specific sign of carcinoma of this organ.

The presence of the *sarcinæ ventriculi*, of the yeast-plant, or of the *bacillus geniculatus* under conditions which produce the lactic-acid fermentation, considered to be suggestive of pronounced myasthenia due to overdistension of this organ, or narrowing at the pylorus, is also suggestive of the presence of carcinoma.

A study of the blood should not be omitted in the preoperative period, for a knowledge of hematology enables the surgeon to detect any form of anemia, and to determine whether it is a blood-impoverishment that can be corrected, or whether it is of the graver or more pernicious form which would either preclude an operation, or if this be absolutely necessary, it would enable him to foresee the gravity of the procedure. The measure of hemoglobin present, or a study of the corpuscular elements of the blood are important points in laboratory technic as applied to

surgical diagnosis. I can recount nothing that has given more satisfaction to myself in the preliminary study of cases than the clearing up of many of the obscure pathologic processes of the deeper organs by a study of the blood, and especially of the presence or absence of leukocytosis.

Within the last few months, in some very perplexing cases, I have been able to make out a positive and satisfactory diagnosis only by resorting to a study of the blood, and in each of these cases the subsequent history confirmed the diagnosis based upon hematology. It is scarcely more than necessary to suggest the value of determining whether the plasmodium of malaria is present, and whether it is of the tertian, quartan or aestivoautumnal form, and of neutralizing the influence of these organisms upon the blood and tissues of an individual before subjecting him to an operation.

There are fortunately few cases in which this study and the most careful preparation of a patient cannot be made, and in even doubtful instances it would in my opinion be safer to err upon the side of a delay even for a day or two, in order to bring the subject more nearly in a suitable condition.

The administration of calomel in small doses, and in triturate form varying from $\frac{1}{4}$ of a grain to a grain and a half or two grains as may be indicated on two or three occasions for a week before but not on the day preceding the operation, as well as rest in bed and the elimination of all foods which tend to the production of germ-development or fermentation in the alimentary canal, or which tax too greatly the digestive apparatus, are also essential features of preparatory treatment.

I have employed for many years a diet list which forbids the ingestion of all uncooked substances, of fruits and sweets, using the carbohydrates in moderate quantity, relying chiefly upon nitrogenous products, the ingestion of which not only before but after the operation gives better

nourishment to the tissues and keeps the alimentary canal in the best possible condition.

The selection of the anesthetic is next in importance, and this implies a most careful application of the rules of physical diagnosis in determining the condition of the heart, the lungs, the pleura, kidneys, liver and other organs, bearing carefully in mind every suggestion which has been gathered from the careful microscopic and chemic analyses already made.

For prolonged narcosis the selection of chloroform or ether should be determined by a careful investigation. The surgeon falls short of his greater obligation when he becomes a routinist for chloroform or for ether, when in fact the indications may in a given case be clearly for one or the other. I have come to the conclusion that ether is in general safer for children under twelve years of age than chloroform, but when a condition, such as an acute nephritis, is present, or when there is an acute bronchial or tracheal or laryngeal complication, as in diphtheria or "grippe," or when a pneumonia is threatened, in other words, whenever it is desired to eliminate the irritating effects of the ether, as in nephritis, it is safer to use chloroform. In cases of weakness of the heart-muscle due to frequent attacks of rheumatism, or when general arterial sclerosis prevails, or in atheroma of the coronary arteries, chloroform is not indicated.

When in an emergency an anesthetic is imperative within two or three hours after the patient has ingested a hearty meal of solid food, it is safer to risk the chloroform rather than the ether, for the reason that vomiting is more apt to occur in ether narcosis, and the danger of vomiting solid food into the pharynx and carrying it into the larynx or trachea is greater than the additional danger to the heart from chloroform.

In adults with bronchial or pulmonary lesions when every form of irritation should be eliminated, and when the heart is normal or nearly so in its function, chloroform is

indicated rather than ether, but in all cases in which I employ chloroform in persons over twelve years of age I introduce 1/150 grain of atropin, and from $\frac{1}{8}$ to $\frac{1}{4}$ grain of morphin underneath the skin about twenty minutes before the anesthesia is begun. There is no doubt in my mind of the tendency of chloroform to depress the heart, and atropin stimulates this organ for the time being, and helps it through the first or dangerous stage of the narcosis. The morphin, producing as it does a partial opium narcosis, diminishes the quantity of the anesthetic required, and in addition it allays in good measure that anxiety which is a part of a commencing narcosis in the vast majority of cases. Fright, we know, is an element in shock, and if this can even in part be obviated by the use of morphin, under such conditions it is justifiable and advisable.

In operations upon the abdominal organs when the technic is seriously interfered with by the act of vomiting, or by the struggle which is usually a part of ether narcosis, I have a decided preference for chloroform, since this can be employed with less danger of vomiting than can ether. I am of the opinion that surgeons in general do not give the place to nitrous oxid as a safe method of anesthesia for operations lasting only a minute or so of time, such as the incision of an abscess and other conditions in which cocain may not be applicable. It is often less painful and less disagreeable to the patient than the local injection of cocain into the skin, although the use of this latter agent is growing in popularity from day to day.

Although my experience in the combination of nitrous oxid inhalation as an aid to a complete ether narcosis is limited, I am of the opinion that it has its value, and that it will grow more and more in popularity for the reason that the inhalation of nitrous oxid is absolutely safe as far as we can determine by statistics, and robbing the patient as it does of consciousness, the disagreeable sensations of a beginning ether narcosis are thus avoided, the patient being

brought under the anesthetic much more rapidly and with a smaller quantity of ether.

I am a firm believer in the use of cocain as a local anesthetic in many minor procedures, and always employ it in cases in which chloroform and ether are contra-indicated, and in many cases in which patients object to complete narcosis cocain anesthesia should be selected.

Medullary anesthesia, that is the injection of cocain into the cephalorhachidian fluid in which the *cauda equina* floats, has proved satisfactory, and in a certain number of cases in which operations are to be performed upon the parts of the body below the diaphragm, it will find its place in practical surgery. It is especially applicable when cardiac and renal lesions coexist.

In administering chloroform, the Esmarch wire screen covered with three or four layers of absorbent gauze is the preferable apparatus, and for ether anesthesia the Ormsby inhaler, or some apparatus which has connected with the mouth and nose-piece a rubber balloon into which the expired air of the patient is forced, and used for warming the ether vapor to be carried into the lungs. This form of apparatus possesses two great advantages as compared to the open inhalers. As just intimated, by using the expired air it warms the vapor to be inspired. It is well known that ordinary atmospheric air passing over ether vaporizes it with great rapidity and lowers the temperature. This is made clear by recalling the now neglected apparatus of Richardson, which consisted of a rubber bulb, an atomizer tube, and a bottle containing ether, the atmospheric air being forced over the ether pipette forcing this out, and vaporizing it rapidly, the vapor being so cold that when applied to the skin it froze it quickly into insensibility. I am of the opinion that many of the accidents, such as nephritis and pneumonia, which are attributed to ether are caused by using open inhalers which carry a very cold vapor immediately in contact with the respiratory apparatus. Moreover the use of the balloon apparatus, eliminating as

it does to the minimum the supply of fresh air, aids the rapid anesthesia and makes unconsciousness possible with a much smaller quantity of ether vapor by producing a controlable asphyxia. Breathing the same volume of air over and over again for two or three minutes, then admitting just enough of fresh air through the side of the tilted inhaler to furnish the proper quantity of oxygen, produces a more rapid and a safer anesthesia with ether than can be obtained by the open inhaler. This partial asphyxiation diminishes the quantity of ether carried into the blood about one-third, and is therefore preferable since ether being eliminated in good part by the kidney, there is less danger of irritating these organs in case there should exist any form of nephritis.

In the actual technic of an operation, the first important suggestion is what is termed asepsis in modern parlance, but which is in fact, antisepsis. Asepsis is a surgical impossibility, and our hope in using the word is only to emphasize the importance of cleanliness. I doubt if any major surgical operation was ever performed under conditions in which sepsis in some form or other was not possible during the procedure. The air of the place of operation which must come in contact with the wound of itself bears the germs of sepsis. No matter how carefully the operator scours his hands and cleans his nails, and insists upon the same thorough method on the part of his assistants, it is practically impossible to remove the germs which lodge in the follicles and creases of the skin, and in the nails which are usually cracked as a result of submitting the hands to frequent washings in antiseptic solutions. Asepsis may, with no suggestion of irreverence, be compared to that high moral aspiration which the Christian religion implies, a standard of right doing and of morality so high that it is not possible for mortal man to reach it; and yet, as with asepsis, it is better to have the aim high and aspire to reach it, since in one as the other case it has been productive of such splendid results. Therefore, in

surgery in the technic of an operation I should insist upon the scouring of the skin with clean sterile soap and sterile brush, the solution of the fat in the follicles of the skin by ether, and the use of mercuric chlorid solution for the skin and the hands, or of pure carbolic acid and alcohol if the operator should prefer it. I have found soap and water and mercuric chlorid perfectly reliable and satisfactory in my own experience for the last fifteen years. Dexterity, and I may add ambidexterity, is of great value in a surgical operation, since rapidity of execution when not incompatible with thoroughness is of great importance in shortening the time in which the patient is subjected to the strain of the narcosis.

The prevention of hemorrhage is one of the most essential features of successful surgery, and it is better (except in the case of exceedingly plethoric individuals) to stop every bleeding point either by the pressure of retractors or the temporary application of forceps, rather than to lose even the smallest quantity of blood. By the use of a large number of artery-forceps rapidly applied, all bleeding may be controled, and ten out of a dozen of such bleeding points will not require a ligature, when the time comes to remove the instruments.

A very important part of a surgical operation is to avoid violence to the parts within the field of operation. Grasping with an artery-forceps more soft tissue than is necessary about the mouth of the vessel is not judicious, since it bruises and kills this much tissue, and if left on after the ligature is applied affords pabulum for any germs which may possibly have found their way into the wound. Too strong traction with the retractors should be avoided. In operations upon the organs in the abdominal cavity, these should be treated with the greatest possible consideration, and should never be touched by the operator if this can be avoided, and when manipulation becomes necessary it should be done with the greatest care and gentleness, because temporary paralysis of a loop of the intestine often

ensues upon violent or rough handling. No organ should be drawn out of its normal cavity unless it is absolutely necessary, and when this has to be done the greatest care should be taken to keep up the normal warmth of the organ by artificial heat. When a wound is closed it should be as dry as possible. Bearing in mind the well-known fact that pyogenic organisms, in fact all bacteria, thrive best in moist media, and that they cannot proliferate in a dry medium, the importance of having all moisture out of the wound when the final dressing is applied cannot be overestimated. To this end I make it a rule to lay a wicker of absorbent gauze in any wound that I am closing by sutures, and not removing this gauze until the last suture is about to be tied, when the gauze is withdrawn and the final dressing laid on by the hand of an assistant, making compression at once to prevent any transudation. By applying the dressing and bandage immediately while this compression is being made, oozing is prevented; and in this way alone, in my opinion, can the highest possible degree of asepsis be secured.

The conservation of body heat is another essential in surgery. No part of the body should be exposed except that which is necessary for the operation. The feet and legs and arms, and all other parts should be carefully protected, and in the case of anemic persons, cotton wadding or batting should be applied with bandages before the operation is commenced. The temperature of an operating room should be higher than would be necessary to the comfort of a person who is up and about. The wetting of a patient by irrigation or by pouring solutions over a wound is reprehensible, since all possible cleanliness can be obtained without this additional risk to the safety of the patient.

In the aftercare of a patient trained assistants should be always present with all the apparatus necessary for relieving the pharynx of mucus or of any matter which may

be vomited and find its way into the larynx before the reflex of this organ is reestablished by consciousness. The mouth-screw, the gag, the tongue-forceps, and the swabs are part of the implements of the anesthetizer and should never be omitted. The hypodermic syringe already loaded with strychnin should not be omitted, and another instrument of this kind for the hypodermic injection of whisky is a wise precaution.

The postoperative management of a patient after an operation requires careful attention to the bladder, to have this organ emptied without the danger of infection from faulty catheterization which practice should always be avoided when it is possible. Emptying the bowels by the aid of a high irrigation with warm water, or with a little turpentine or glycerin added to this as a stimulant, is an essential feature of the postoperative treatment, while in certain cases in which the peristalsis of the small bowel needs to be stimulated, calomel in triturate doses of one to two grains followed by Carlsbad salts in hot water, has given, in my own experience, the most satisfactory results. There is no purgative which prevents the development of gases in the bowel and leaves the patient in such good general condition as calomel. The exclusion of every article of diet or of medication which would cause fermentation or favor the production of gases in the bowels after operation is good practice. All uncooked articles of food, fruits, sweets, all gaseous liquids, such as kumyss, buttermilk, or sweet milk in vichy, I prefer to omit from my diet list. The plainest, simplest cooked foods, such as wheatena with butter or a small quantity of milk which preferably should be pasteurized, beef juices, the tender parts of meats, soups, etc., are the better articles for ingestion.

Finally, complete rest is an essential in order to achieve the best possible results for the work the surgeon has done. This is especially true of operations upon the abdominal wall, when a hernia may result on account of faulty union

of the divided tissue. The patient should not be allowed to sit up in bed under such conditions, for the reason that the muscles are brought into tension in the act of sitting up as well as in retaining the body in the semi-erect posture. For hernia or appendicitis or other laporatomies I keep my patients in bed for six weeks, and for five weeks of this time flat on their backs, the shoulders being propped up only for the purpose of feeding. It takes this length of time for the connective-tissue elements of the reparative process to be thoroughly fibrillated and in proper condition to permanently hold the tissues where your operative work has placed them.

In children or unreliable persons I use plaster-of-Paris in order to secure without any doubt this desirable result. These measures are deemed hard, and they are ultra-severe. They almost suggest cruelty, but there is a quotation from Hamlet which applies with great directness and force to the best of surgery. It is "I must be cruel, only to be kind."

CHAPTER III—MEDICINE

GLANDULAR FEVER

BY J. PARK WEST, M. D., BELLAIRE

Glandular fever may be briefly defined as an acute general infection with a local manifestation on the lymphatic system. It was first described as a distinct affection by Pfeiffer in 1889, although similar cases had been published previously by Filatow. A number of papers on the subject followed Pfeiffer's at intervals in foreign countries, but none appeared in the English language until that of the writer in December, 1896. Since then a number of papers have been published in American and English journals, and some of our recent text-books on Practice and Pediatrics devote more or less space to it.

Whether glandular fever is or is not entitled to be classed as a distinct clinical entity remains to be proven. That it is proven is so considered by some; not so by probably many more. A study of the literature and a close study of the few cases that have come under the writer's care have convinced him that this is a distinct specific general infection as mentioned above, and not merely an enlargement of certain groups of nodes due to some local or accidental infection, nor a form of any other disease. A study of the literature will also show instances of cases reported as glandular fever that are not cases of the disease described by Pfeiffer, and such reports only tend to obscure the subject and to cause doubts in the minds of many as to its true nature and place. It has been the writer's lot to have had shown to him cases from Ludwig's angina down to simple acute adenitis from local infection, that were thought by the attending physicians to be cases of glandular fever. Cases of acute enlargement of groups of lymphatic

nodes are occasionally seen that only the closest observation will enable one to say are or are not glandular fever, and for the present such cases should be studied with the closest scrutiny. If glandular fever exists as a clinical entity its course has been clearly pointed out by a number of observers, and there should be no difficulty, in most instances, in recognizing the condition or in differentiating it from other conditions. As yet we have only the clinical picture upon which to base an opinion, the little bacteriologic work that has been done not showing anything satisfactory. Since the writer's first paper he has seen but eight cases of the disease, and opportunity for close observation was only afforded in three of these. Five cases occurred in three families between whom there was frequent communication; all the children in the families having the trouble. One was an only child. In one family there was another child nine years old, and in the other family three children.

Symptomatology. Almost always the disease sets in suddenly with high temperature, muscular soreness, and severe constipation. The child presents the appearance of one very ill, objects to being moved, and holds the head stiffly to one side. Very early enlargement of some lymph nodes will be found, and it is probable this exist from the beginning. This enlargement will always be found in those cases with prodromal symptoms when the child is first seen. Except in the minority of cases this swelling first appears on the left side of the neck at the upper fourth of the sternomastoid muscle. Only occasionally will there be at this time enlargement of other nodes. The first mentioned swelling increases for three or four days; or as long as the fever remains high, and during this time other enlarged nodes will appear. These will be most noticeable in the same situation in the right neck and to a lesser extent in the posterior neck both sides. Swelling of the nodes in the axilla and groins will appear later in almost all cases, and often in the abdomen, but it is the exceptional case that

will have swollen nodes in all these situations; neither will the swelling be so marked in these places as in the neck, particularly on the left side. Symptoms point to an enlargement of the thoracic nodes also. Enlargement of the retropharyngeal nodes was made out by palpation in four of the writer's eight recent cases, and two went on to suppuration. The same chain of nodes goes on to the ear, and one of the two cases had in addition suppuration of the middle ear. Manifest enlargement of the liver and spleen is seen in many cases; oftener of but one of these organs. After about the fourth day the swelling in the left neck becomes stationary and in 12 to 24 hours diminishes slightly, while that on the right still increases but rarely reaches the size of that on the left until it also becomes stationary and then diminishes. The nodes in the other groups seldom enlarge to one-third the size of even those in the right neck, and seldom increase any after 24 hours from the time when they first can be felt. All the swollen nodes are tender, the overlying skin retains its normal color, suppuration rarely occurs, and they disappear entirely in 3 to 4 weeks. Anorexia is usually complete, and at times there is vomiting and pain in the stomach. Obstinate constipation, in all but the mildest cases, is a prominent symptom in the early part of the illness. The general symptoms of acute infection are present, and as a rule are severe. The termination, except in the mild cases, is often by crisis, but not with such a marked fall of temperature and general improvement as in croupous pneumonia for instance, the crisis being accompanied or preceded by a fetid diarrhea. After this the severity of the general symptoms lessen, there is no farther increase in the size of the swellings, and the child is left weak and pale. The return to health is slow, the anemia persisting for a variable time. The skin may be flushed or dusky, while the temperature is up, but shows no eruption. In but very few cases is there an angina, stomatitis, or coryza, and when present very mild and of short duration.

The report of the two following cases, seen within the past year, will, it is hoped, prove of interest.

Case I. Genevieve Morrison, female, 16 months old. Only child in house. Bottle-fed since birth. Fairly nourished. Ten teeth. Slight rachitic rosary. Head tends to be square. Anterior fontanel large, but at and since birth has been two or three times larger than normal. Slight sweating about head at times only. At 4 p. m., on April 25, 1900, while playing on the floor and in her usual health she began crying as if in severe pain. At 7 o'clock she had another similar cry, and it was then noticed she was feverish. During the night she was feverish, restless, and sore when moved. This continued the next morning with the addition of drooling and a stiff neck. When seen by the writer at noon she was extremely nervous, held her head in a constrained position, and any attempt to move her caused her to cry out and grasp tightly the one holding her. There was slight drooling, the buccal mucous membrane was red, the tongue whitish coated, and the throat normal. On the left side of the neck along and under the upper part of the sternomastoid was a tender swelling in which could be felt four nodes, and on the right side a swelling one-third as large as that on the left. The thoracic and abdominal organs were normal. The bowels had not moved since the morning before, and she had taken but little milk. Temperature 103 1/5°, pulse 140. In the evening of the same day the condition was much the same, except she was somewhat quieter. She had taken a small quantity of milk twice, and vomited once. She had had one small bowel movement and the swellings in the neck were slightly increased. Temperature 103°, pulse 144. Breathing quick and short.

April 27, a. m. Rested better than previous night. Eyes stuck together this morning. Moves head a little better, but neck still quite stiff. Nervous and grasps when moved. Nodes on both sides of neck increased in size, those on the right more than on the left, and the individual nodes are felt more distinctly on the right side. The nodes on the back of the neck are felt to be enlarged, and the edge of the spleen can now be felt. Temperature 102 3/5°, pulse 120. 7 p. m. Face flushed. Looks worse. Very restless and irritable, and has been so all day. No drooling since noon. Buccal mucous membrane natural pink. Throat looks full

but not red. Whitish coating on tongue heavier. Has taken small quantity of milk twice, and drank water freely all day. Vomited once. No stool. Urine scanty. Nodes felt in both groins. Spleen larger. Breathing hurried but not obstructed. Temperature 103 3/5°, pulse 132.

April 28. Very restless all night, and is still so this morning. Drinks a great deal, but takes no food. Bowels moved by suppository. The cervical nodes a little larger. The inguinal are larger, and those on the right side larger than on the left. Nodes can be felt in the right axilla for the first time. None are so tender to touch and there is not so much muscular soreness. Temperature 102 3/5°, pulse 96. p. m. Had a free loose stool at noon. Looks better. Took her usual amount of milk twice today, and slept for three hours this afternoon. Slight sweat before and during sleep. Breathing still quite hurried. Is not so nervous and irritable, and shows desire to play but soon tires. Neck is still stiff, but head is moved more easily. Temperature 100°, pulse 120.

April 29. Slept fairly well. Has been very quiet and wants to be nursed. Hacking cough 3 or 4 times. Two thin offensive stools. Has taken nearly full meal of milk. No vomiting. Nodes same as yesterday. Temperature 100 2/5°, pulse 108. p. m. Slept 2½ hours. Looks pale and weak. Cross. Neck still quite stiff. Appetite returning. Two small stools. Nodes are smaller. Temperature 99 3/5°, pulse 120.

April 30. Rested only fairly well last night, and is quite weak but not fretful this morning. One thin stool of normal odor and color. Temperature 99°, pulse 108. p. m. Had one hour's restless sleep. One thin green and brown offensive stool. Irritable, but has shown some desire to play. No change in nodes except the tenderness in those in the neck has about gone. Temperature 99 2/5°, pulse 108.

On the next three days during the writer's absence, she was seen by Dr McClellan, who reported a slow improvement and no fever. She was somewhat restless on the night of May 3, and at times had some difficulty in breathing. On May 4 she was restless and did not breathe well, and refused to take food. The pharynx was red and swollen. On the next morning the symptoms just mentioned were more severe and a digital examination of the pharynx showed two swellings on the left posterior wall,

the upper one an inch in diameter and soft, the lower about one-third of an inch and hard. An unsuccessful attempt was made to open the upper swelling with the pointed finger nail; a guarded listoury had to be used and about one dram of pus discharged. There was relief to her breathing and swallowing, but no improvement in her general condition, and it was thought the lower swelling was to suppurate. The remainder of the day and the following night she was very ill. Early the following morning there was a discharge of thick white pus from the left ear with much relief to her symptoms. A digital examination of the retropharynx showed both nodes smaller. The ear discharge continued two weeks longer, no enlarged nodes could be found after the third week, except that those in the left neck did not disappear until the fourth month.

Case II. Alfred Hook, male, 3 2/12 years old, Healthy child. One other child, 9 years old, in the family. On Friday, November 2, 1900, he had a slight cold in his head, but was not ill nor complaining. He was well Saturday until night, when he complained of his neck hurting. His mother found it stiff and somewhat swollen. He was feverish and sore, and restless all night and the next day. Sunday he was given a dose of castor oil which caused four small movements in the next 24 hours, but gave no relief to his symptoms. On Monday morning he was seen by the writer. He was fretful and ill; his neck was stiff with head bent to one side, and he was sore to movements. Over the upper part of the left sternomastoid muscle was a swelling about one half the size of a hen's egg, rather hard and quite tender, and in it could be felt four nodes. Just back of this could be felt, not seen, four other nodes somewhat swollen and slightly tender. Careful examination disclosed no other enlargements. The mucous membrane of the cheeks was reddened. The pharynx was not swelled nor red, and there was no coryza. The chest and abdominal organs were normal, although the abdomen was quite full and tender. Temperature 102 1/5°, pulse 130, respiration 36.

Tuesday. General condition about as yesterday. Was drooling a little yesterday and this morning—none now. About noon, an hour before this visit, the mother noticed some swelling on the right side of the neck which she is positive was not there at 10 o'clock. It is tender, about half the size of that on the left side, and in it can be felt

three nodes in front of and under the upper part of the sternomastoid. The nodes in the left axilla, under the border of the left pectoral, and in the groins are enlarged, all somewhat tender but not so much so as those in the neck. Occasional slight cough, and at times some heaviness of breathing. This suggested a digital examination of the pharynx which was made, and swelling was found on the left posterior wall. Tenderness in left neck not so marked, but little if any change in size. There has been complete anorexia and constipation since the beginning of illness. Very stiff and sore when moved. Urine normal. Temperature 103°, pulse 144, respiration 40.

Wednesday. Slight nose-bleed yesterday evening. Mother thought the fever had been higher than before. Very restless night. One thin very offensive stool last night, and one this morning. Some appetite. Complained of pain in stomach 2 or 3 times. Occasional slight hacking cough. Muscular soreness not so marked. Neck still as stiff. The swollen nodes are smaller and not so tender. The right side of the neck enlarged to two-thirds of that on the left; the separate nodes in the axilla and groins were 1/3 to 1/2 the size of those in the neck. Temperature 101 2/5°, pulse 132, respiration 30.

Thursday. Not so well yesterday afternoon and evening, but slept better during the night, and is much better today. Plays some, has some appetite, and has had three thin brown offensive stools. Still some muscular soreness with but little neck stiffness. The abdomen was flat, and on deep palpation the mesenteric nodes could be felt indistinctly. All the other swollen nodes are smaller and but little tender. They are the same size on the two sides of the neck. Slight hacking cough. Breathes and swallows easily. Temperature 100 1/5°, pulse 120, respiration 24.

Saturday. Is very pale and weak. Plays some, but is easily tired. Has slept well, and the appetite is better. Bowels regular, and the passages are more natural in color and odor. There is still some stiffness of the neck, and the swellings have diminished but little. Temperature 100°, pulse 120, respiration 24.

On November 15, five days later, he was seen again. On the 13th he had been feverish and fretful. On the 14th better. Today feverish again. Temperature 101 2/5°, pulse 124. The swollen nodes are going down very slowly. On

the 16th he was better again. On the 17th temperature 101 4/5°, pulse 132. He was given quinin, after which there was no return of the fever. On the 20th there was still some enlargement which did not leave entirely for two weeks.

The most interesting question in connection with this subject is that spoken of in the early part of this paper, *i. e.*, is glandular fever a distinct disease? If we are to answer this question in the negative it seems to the writer that it can then only be that form of influenza accompanied by catarrhal inflammation of the upper respiratory tract in which there is enlargement of the cervical lymphatics and comparatively frequent suppuration in the retropharynx and ears. There are certainly no grounds upon which to suppose it to be a modified type of any of the other known acute infections, nor an irregular form of any of the acute exanthematous diseases. This symptom-complex resembles catarrhal influenza in the sudden onset, high temperature, muscular soreness, prostration, and slow convalescence. In catarrhal influenza there is also enlargement of groups of nodes, but this is always plainly due to, and usually commensurate with, the local lesion, and suppuration is not uncommon. In glandular fever this local inflammation does not exist, or if present, as occasionally occurs in a few cases, is so slight and evanescent as to be wholly unaccountable for the trouble. The enlargement of the nodes pursues a peculiar and quite regular course, increasing in size as long as the fever continues, new groups from time to time joining in the process with an entire absence of any catarrhal inflammation in these later places in all cases. In influenza the catarrhal symptoms are fully as prominent as the general, the swollen nodes appear sometime after and not with the beginning of the disease, and only in such situations as will be accounted for by local lesions, and the enlargement continues after the subsidence of the catarrhal process. Almost all theories point to this trouble as an infection from the intestinal canal, and the facts seem to

warrant this. The milder cases are accompanied by diarrhea, the severer by constipation, and there is no change in the patient's condition until this is involuntarily relieved. Influenza is an epidemic disease affecting adults in preference to children, while glandular fever is restricted to house epidemics and rarely if ever affects adults. This received special mention by Pfeiffer and was particularly shown in the epidemic watched by Dr F. A. Korell of Businessburg and detailed in the paper mentioned above. The descriptions of Pfeiffer, Filatow and Heubner were published before the recent pandemics of influenza began in 1889. Influenza is generally ascribed to the bacillus of Pfeiffer, but no bacteriologist who has examined cases of glandular fever has reported the finding of this bacillus.

The Pretubercular State

BY W. S. PHILIPS, M. D., BELLE CENTER

Since the savage in his native environment is free from tuberculosis, we must conclude that certain conditions of civilization are responsible for its development. That it is not due to the manner in which our bodies are clad, the comfortable homes in which we live, nor to the progress of intellectual development *per se*, is too evident to need refutation. However, as a truth of common observation, certain external and systemic conditions favor its development; some of the prominent of which are a high relative humidity of the atmosphere, improper relation of the height to the weight of the body, senility, pregnancy, imperfect digestion, and certain diseases, as measles, scarlet fever, smallpox, typhoid fever and nephritis.

That there is an ultimate common state prior to the development of tuberculosis into which all of these external and internal influences converge, is apparent, using analogous operations of nature as to cause and effect, as our basis of judgment—otherwise, the accredited results of

observation are without any foundation in fact. Susceptibility is but a circumstance or combination of circumstances of human existence, and in tubercular infection will be found to be as simple as wound infection when properly elucidated.

The first link in the chain of evidence relates to food ingestion. Among the common domestic animals we find the cow readily tuberculosable, while the horse is rarely so. In the performance of their bodily functions three striking distinctions are observed. The former habitually exhales organic matter with the expired air. The horse is an habitual sweater, while the cow is not, and the horse is protected from the results of overfeeding by attacks of acute indigestion and colic, a rare occurrence in the cow. Again the cattle on a thousand hills, whose provender is such as nature furnishes in its original state are relatively free from tuberculosis, while the stall-fed herds of the Queen of England became the wholesale victims of slaughter. Also the cows of the dairyman whose sole income is the product of the dairy are more frequent victims than that of the farmer whose herd is only an incident of his industry. The fact that feed makes milk and milk brings ready cash impresses itself more forcibly on the former than on the latter.

A number of children having spinal tuberculosis with whose home life the writer has been familiar from their birth furnish similar examples. The products of the confectioner and the pastry cook have been almost constant elements in their dietary, and their life history has been characterized by attacks of acute indigestion, sore throat, decayed teeth, foul breath, and feelings of indisposition produced by the ingestion of food beyond the requirements of the system and made with especial reference to gratify the sense of taste rather than contributing to the actual needs of the body. As a rule this is the manner in which people, both young and old, are fed, both in the families of the rich and among the humble tenants of the cottage.

With the savage in his native state, the case is different. His stomach is not made the receptacle of that which is prepared with reference to his gustatory sense except in so far as it may satisfy the natural feelings of hunger, the circulation neither being flooded with a pabulum for which the economy has no use, nor with the products of fermentation and decomposition of the ingested food.

Also, it is a matter of observation that a functionless skin is too frequently associated with the development of tuberculosis to be a mere coincidence—a condition referred frequently to an attack of some eruptive disease in childhood, so that conditions impairing the function of elimination favor the production of tuberculosis. A damp, cool atmosphere, permitting the rapid radiation of bodily heat and contracting the cutaneous capillaries, reduces the function of the glands of the skin to a minimum.

The population of our penal institutions inhabiting the damp dungeons of their abode develop a mortality from tuberculosis that is simply frightful, and the history of the average case in the outside world, unless occurring as an immediate sequel to some of the diseases heretofore mentioned, traces its origin to the late winter or early spring when the air is saturated with moisture, and the function of the skin is at a low ebb, as can be demonstrated upon the body of any healthy person. Pregnancy, owing to its derivative effect upon the circulation, depleting the cutaneous vessels, produces the same effect upon the skin, as also do the retained chemical products usually excreted by the kidneys, through their effect upon the nervous system, in inherited or acquired kidney insufficiency. Inflammatory diseases of the skin such as measles and smallpox, which are found in the category of remote causes of tuberculosis, evidently injure and destroy the glandular structures of the skin and operate in the same way. Then stating the proposition conversely it is equally true in pathology as in mathematics that two quantities equal to each other are equal to the same thing.

In the case before us whether the natural organic waste of the body is denied an exit or the circulation overloaded with nutrient pabulum or nutriment unprepared for its reception into the circulation, the resulting phenomena observed are identical—the disturbance of digestion being the usual intermediate difficulty commonly noticed. Given the case of a healthy child having unrestrained access upon a single occasion to that which is attractive to the taste; the next morning will reveal upon the most superficial observation a coated tongue and foul breath. The same things are noticeable in all of the circumstances in which the process of oxidation is quickened, as in fever or when the function of the skin is compromised such as in atmospheric conditions, senility, Bright's disease, measles and pregnancy; no taint of fetor being found in the blood of the latter and certainly in none of the others.

Or the case of an individual whose height is out of proportion to his weight. Pound for pound he requires the same amount of nutriment as the individual whose corpulence is up to the standard, while all the glandular structures of his body have length without corresponding circumference, so to speak, with a consequent diminution of vital energy on account of which the food products are thrown into the circulation in an unfit shape for its reception, there to be disposed of in some other than the usual way.

Some recent observations seem to indicate that in pulmonary consumption the interchange of gases is much more active than ordinary, nor is it to be wondered at that the circulation loaded with organic debris and food products, both imperfectly prepared and in excess of the needs of the body, should manifest an extraordinary hunger for oxygen, increasing the amount of carbon dioxid in proportion.

That the coated tongue and teeth and the offensive breath are but different expressions of the same thing is evident from the fact of both being produced by an identical chain of circumstances. That the former is a deposit of

semisolid organic matter, escaping from the blood and carried out by the expired air, is certain because of a like behavior of other impure gases and because of its having no other possible origin. That the fetid breath is the result of decomposed organic matter is indicated by the sense of smell and that the place of lodgment and process of decomposition occur somewhere in the respiratory tract and not existing in a state of decay while suspended in the blood.

There is a point in the terminal bronchi beyond which there is no epithelial lining and beyond which nature is almost powerless to remove any foreign material save by absorption, as indicated by the invisible disappearance of the exudate in pneumonia and the tedious process of removing insoluble particles of dust inhaled, lasting for many months in the case of the coal miner. In the peribronchial tissue of the terminal bronchi is usually to be found the first evidences of tubercular invasion.

Thus associating the circumstances in the history of the individual who sooner or later becomes tubercular with the known phenomena of its development, we can only arrive at the conclusion that in the morbid conditions before mentioned the bacillus is furnished a culture-medium not essentially changed from that in which it is propagated outside the body, and the place in the terminal bronchi where it may remain until liquefaction occurs, then by absorption to find entrance into the body, inciting inflammatory reaction either immediately or remotely as the vital processes are able or unable to hedge in the invader by the barrier so produced.

DISCUSSION

Dr B. F. Lyle, Cincinnati: Judging from the contents of the paper of the gentleman who has just spoken, one would imagine that the whole cause of tubercular infection is deficient metabolism. This condition of course exists in all cases of tuberculosis, but whether it is the cause I question very much. Any person with deficient digestive ability may of course be a candidate for tuberculosis. We know very well that the lungs may be involved through

bacilli which have been ingested, but that does not prove that a person who ingests a superfluous amount of food with a deficient elimination will have tuberculosis, or is more prone to it than others. We find that the tuberculous process is generally one which is rather slow in its action. We find that persons who have not access to a sufficient amount of food are those who are more prone to tuberculosis than those who have an excessive amount. You will find in one of the recent journals an article devoted to a consideration of gout in its relation to tuberculosis in which it is stated that those who ingest a large proportion of nitrogenous food are more apt to have a gouty diathesis, and are less prone to tuberculosis than those who have a deficient amount of nitrogenous food. What we want to do in feeding this class of patients is not to overfeed them, but to give them all they will take and digest. That food which is necessary to benefit them is also necessary to keep a patient from getting tuberculosis. We want to give them plenty of pure air, sunlight, and good food. It is necessary to build up the blood by blood tonics, the nervous system by appropriate stimulants, etc., and not to endeavor to combat the disease by giving insufficient alimentation.

Dr John A. Thompson, Cincinnati: Mr President and Gentlemen: The title of this paper naturally brings up the question—Is there such a thing as the pretubercular state? Our medical literature for a number of years has described a condition with the symptoms connected with it which has been characterized as the pretubercular stage. I think later researches in pathology, as well as later clinical observation, will show that the so-called pretubercular state is the stage of tuberculosis of the lymphatic glands. It is this condition of infection through the lymphatic glands before definite localized lesions either in the joints or in the lungs that I think goes under the misnomer of the pretubercular state. If there has been anything demonstrated by experimental scientific medicine, it is that the lesions of tuberculosis are produced by a definite organism. Now there are certain conditions which favor infection and the growth of the germ in the system, but the so-called pretubercular state is a lymphatic tuberculosis. I have demonstrated this condition by clinical observation in cases in which there was a slight anemia, a slight failure in nutrition, with an evening rise of temperature, certainly not reaching 100°, 99 2/5° perhaps. The chief symptom in the

patient would be some catarrhal condition in the mucous membrane in the upper air-passages. I have learned in those cases, when there was no response to the usual treatment, to study the patient's temperature, and when I have found a slight evening rise the patient has never failed in time to develop definite symptoms of tuberculosis in the lungs. It takes weeks or months for these symptoms to be plain enough to be demonstrated. The more I read of these cases and study them, and in connection with these the Woodhead experiments, the more I become convinced that the pretubercular state is one of infection, when the disease is limited to the lymphatic glands, and is not demonstrable. The time to cure the patient is when he is in this state of lymphatic tuberculosis, and if we recognize the process as such, and treat it accordingly, we will prevent not a few cases from developing lesions in the lungs. Personally I do not believe that the pretubercular state exists—it is a condition of tuberculosis of the lymphatic glands, and if this condition is not recognized and treated, infiltration in the lungs will occur later.

Dr G. H. Colvill, Circleville: I think with the last speaker that the state which has been described by the essayist as the "pretubercular" is a lymphatic tuberculosis, an incipient tuberculosis, which is so insidious in its onset that it is pretty hard for any person to determine the line of demarkation.

In regard to the paper—it has not been my experience that the ordinary digestive difficulties are particularly prone to be followed by tuberculosis, in fact we see dyspeptics, gourmandizers, that live to be old people, very old people. Their stomachs are always out of order, they are always complaining of dyspepsia, yet they still live, and do not have tuberculosis. I believe, however, that we will find in the class of people who are rather illy fed and illy clad, and who have not had the comforts of this world's goods, a tubercular tendency transmitted from one generation to another, or a pretubercular state as you might call it. With a proper alimentation, a proper occupation, and possibly a change of environment we might get that class of people entirely out of this pretubercular state.

Dr J. A. Kimmell, Findlay: The last gentlemen who addressed us spoke of certain individuals who have dyspepsia, but who do not have consumption. That is a

self-evident fact, and I have noticed these cases, everyone has. Now that is dyspepsia of the stomach. I believe, however, in regard to the pretubercular state that we have this state in patients before we have the lymphatic tuberculosis, that there is a condition of the blood which favors the development of tuberculosis. After the food is digested in the stomach and bowels it is distributed throughout the system, after being prepared in the proper way for assimilation, but in the change which takes place in the nutritious particles of the food to the sustaining particles of the blood the connection is lost. The blood carries the food to the different organs, and each one takes what is its appropriate food, but when the blood brings this food in a state not well organized it drifts on in the blood, and is perhaps lodged in too great quantities in the lungs, and this I believe is one great cause of consumption. It is not in the digestive process which goes on in the stomach and the bowels, but it seems to be in the chylopoietic process that the food is not properly organized or prepared for assimilation. It therefore drifts on in the blood, and as I said above may lodge in too great quantities in the lungs. This to me is the best explanation of the state preceding tuberculosis.

Dr P. E. Cromer, Piqua: I am a general practician. This is one of the most interesting diseases I have ever had anything to do with, and I believe that this subject ought to engage our attention more than it does. It is pretty hard to lay down any rules. It is a germ disease we admit, but when you talk of the pretubercular state it is a little hard for me to understand just what is meant. We cannot have the disease unless we have the germ. Now there is a difference in our constitutions—some may be more susceptible to the germ than others, just the same as some soils are more fitted for wheat and corn than other vegetables. I believe that our constitutions differ that way. Probably one blood is just as good as that of another, but there is a fine distinction which has never been made out properly. All of us breathe these tuberculous germs. I have seen coal heavers on the street, and others who were doing manual labor in the most exposed situations, and yet these people never contracted the disease; but on going into some of the finest homes where the occupants have every means for leading the most careful lives there you will find victims of tuberculosis. The disease seems to belong to a civilized state of people. From the fact that

more people die from this disease than from any other ought to arouse us to means for combating the disease. I have tried to study patients in my own community and neighborhood, and I have found, as you have probably found, that they will not take foods which are repugnant to their appetites. The things which would build up their systems in the way of food they will not eat, and not only this but they will expose themselves in the most careless fashion.

Dr S. P. Kramer, Cincinnati: If I may be permitted, I shall venture the prediction that our ideas of tuberculosis will undergo very decided changes in the next few years. As you all know, before the discovery of the bacillus, tuberculosis was looked upon as an hereditary disease. This idea is still firmly fixed in the minds of the laity. The studies of Koch, and more especially of Cornet, brought forth the idea that tuberculosis was not transmitted from parent to offspring, but that which was inherited was a predisposition to the disease. Since those studies we have begun to see another modification of our views. It has been demonstrated that the transmission of the bacillus of tuberculosis through the placenta was possible, and that it did occur. This has been demonstrated in a comparatively small number of cases within the past few years. A much greater discovery has very recently been made, viz., that it is possible for a tuberculous father to produce tuberculous offspring direct, that if the semen of the male which fertilizes the ovum of the female is infected with the bacillus the ovum will also become infected and produce a tuberculous fetus. These researches, reported by Friedmann (*Deutsche Medicinische Wochenschrift* 1901, p. 129) are of the utmost importance today, and if substantiated it will bring us back to the old theory of inherited tuberculosis—so that most of those characteristics and symptoms which we class under the name of pretubercular state will be recognized as symptoms of an infection already existing. I wish further to say that such an explanation will clear up our ideas of surgical tuberculosis. It is very difficult for us to conceive of an infection, tubercular in character, being taken into the lungs, which shall single out a knee-joint and leave the lungs and other parts of the body free. But if we can believe that that portion of the embryo was originally infected, that the infection had remained latent to become active as the result of some local factor bringing about a diminished

resistance, we shall have a great deal less difficulty in accounting for the localization of the disease. It will then become as easily explained as the development of a mole or any other congenital growth.

Dr W. S. Philips, Belle Center, closing: I wish to thank the members of the society for the interest they have taken in the subject presented. The paper was intended as a short study in the etiology of this subject, and as the time-limit for essays is so brief, nothing further than a synopsis has been attempted. I have but little confidence in the use of drugs, nor in the use of serums in the treatment of tuberculosis.

I think with a disease having such a high rate of mortality we should first ascertain the conditions producing it if possible. Outside of surgery our greatest success has been made, not in medication, but in the way of prevention.

We have seemingly grown so accustomed to seeing our patients die with tuberculosis, that we have relegated the whole subject to the background, and keep reaching out for some newer subject with which to be entertained for a season and at the same time, often not much profited.

I am very sure when we reach the basic facts of this question we will find the idea of susceptibility one easily comprehensible. The progress which has been made has simplified many things in the matter of infection. So in this we will find a substantial basis readily understood.

The analysis of susceptibility in tuberculosis presented in the paper is committed to the critical judgment of the society. If there be any error in the paper it is in the conclusions drawn from the facts of observation and the general teachings of the profession. I believe the tendency of the present time is to lose sight of the processes of elimination in their relation to the production of disease, and I have been trying to demonstrate a rational connection between the latter and the ingestion of food in excess of the wants of the body, at the same time taking into consideration the circumstances of environment, exercise and previous disease. While the gratification of a good appetite will often subject the individual to the tender mercies of gout, through the natural chemical processes going on within the body, the organic debris accumulating in the accessory channels of elimination furnish a pabulum for the culture of germ-life finding a congenial abode in the animal or human body.

Epigastric Pain

BY HENRY WALD BETTMAN, M. D., CINCINNATI

It has long occurred to me that, as chapters and even volumes are devoted to the subject of headache, much study should be devoted to the no less complicated subject of epigastric pain. Epigastric pain is an exceedingly common and therefore an exceedingly important symptom. It is usually dependent on some disorder of digestion, and its relation to gastritis, to ulcer and cancer of the stomach, and to hyperchlorhydria is well known and needs no further elucidation. Likewise its dependence on malaria and gastric syphilis has been repeatedly pointed out in recent years. I shall not dwell on these topics here. There remains a fairly large number of cases in which epigastric pain plays the leading role, and in which the above diseases have no part. Without making any effort at completeness I shall attempt to call your attention to certain types of epigastric pain which often act as stumbling-blocks to clinical success.

One of the most important advances of recent years is our discovery that paroxysmal pains in the epigastrium variously called gastralgia, cardialgia, gastrodynia, and gastrospasm, are frequently caused by gallstones and cholecystitis. There is not the least doubt that inflammatory distention of the gallbladder leads to severe cramping epigastric pain, and that many patients are treated for years for imaginary gastric diseases who might be permanently relieved by cholecystotomy. It seems probable that the majority of cases diagnosticated as gastralgia, in which the classical symptoms of gastralgia occur *viz:* violent paroxysmal pains in the epigastrium, boring or tearing and radiating in character, accompanied by prostration or collapse, are in reality cases of gallstones with accompanying cholecystitis. A close study of every case is necessary before a diagnosis can be made, but with the requisite care a correct conclusion should be reached in the great major-

ity of instances. The special features of paroxysmal epigastric pain due to gallstones are these: the attacks may occur independently of the taking of food; they often occur at night, four to six hours after the last meal; they come without apparent cause, sometimes after the blandest diet. They are very likely to follow the ingestion of acid drinks or alcoholic beverages. They are often accompanied and followed by tenderness over the gallbladder. Between the attacks the gastric functions and the gastric secretions may be perfectly normal. The clinical picture is almost pathognomonic of gallstones. Many patients affected with gallstones complain for months of epigastric pains, coming on daily after meals and of variable intensity and duration.

It should be laid down as a clinical rule that gallstones should be suspected whenever patients complain of regularly recurring or paroxysmal severe epigastric pain, coming on several hours after eating, and when a careful examination of the secretions and digestive functions of the stomach reveals no abnormality.

Many histories could be cited from my case-records in which a diagnosis thus made was verified months or years later, either by the occurrence of a typical attack of gallstone colic or by an operation. A few briefly outlined but typical case-reports are appended.

Mr M. S., aged 45 years, suffered for many years from headaches and epigastric pains. Regularly after eating he would become bloated and distressed, notwithstanding the most conscientious dieting. During 1895 he secured temporary relief from the use of sodium phosphate. In 1896 he had a severe attack of gallstone colic with jaundice, after which he felt relieved of all gastric symptoms for some months. Since 1897 he has again had frequent attacks of so-called gastralgia, though his gastric functions are unimpaired. He refuses an operation.

Mr E. R., aged 48 years, suffered for over 20 years with attacks of intense gastralgia, rendering his life burdensome. No line of treatment afforded relief, and attacks of severe pain limited to the epigastrium recurred at short intervals accompanied by marked prostration. In 1898 he

was seized with intense gallstone colic, and in the course of ten days passed 15 gallstones. Since then he has been perfectly free from epigastric pain and other symptoms.

Mr F. L. suffered for several months during 1899 from exceedingly severe spells of gastralgia. He lost flesh rapidly, and was rarely free from epigastric pain for more than two or three weeks at a time. He had no other symptoms. Repeated examinations failed to show any abnormality of the gastric secretions or functions, except a slight hyperchlorhydria. In the spring of 1890 jaundice set in after one of his attacks, and an operation revealed a retracted and inflamed gallbladder, inaccessible to palpation, containing several hundred stones.

Similar cases could be cited in large number, but those quoted may serve as types. The lesson to be drawn from them is this: (and this teaching should be far more strongly emphasized than heretofore) *that in the demonstrable absence of gastric lesions and tabes, severe paroxysmal epigastric pains in the vast majority of instances indicate the presence of gallstones.*

The dependence of epigastric pain on spinal disease has long been recognized, but is occasionally overlooked in practice. Hilton (Rest and Pain) describes several very interesting young patients who had been treated for months or years for disease of the stomach, and who had been subjected to various forms of dieting and medication without relief. Upon examining the patients and tracing back the pain along the course of the affected nerves, he discovered tubercular disease of the cartilage between the sixth and seventh dorsal vertebrae. These patients were cured by rest in bed. Buch (*St. Petersburg Med. Woch.* 1889 No. 22) describes an interesting condition which he designated *"Wirbelweh"* (spine-tenderness) and which often simulates gastralgia or dyspepsia. In a certain number of patients pressure against the anterior surface of the spine about an inch below the umbilicus, produces a severe pain located in the epigastrium and radiating to the hypochondria, a pain identical with that which led the patie

to seek medical advice, and for which they had been dieted and medicated in vain. I am at present treating a man aged 56, who presents this symptom in typical form, and who followed the most rigid diet for weeks in the hopes of getting relief. He now eats three large meals daily, and is regaining his strength and weight, though the symptom persists in a very mild form. Examination of the stomach reveals no abnormality of secretion or function.

It cannot be repeated too often that, when several examinations of the stomach fail to reveal any abnormality of function, we should seek elsewhere than in the stomach for the prime cause of the symptoms. We will thus avoid many mistakes, and spare our patients much useless and even harmful dieting. To treat the stomach when the local symptoms are merely the expression of some constitutional condition, or a reflex from some distant organ, is certainly irrational.

Persistent epigastric pain may be produced by pelvic lesions and much more rarely by eye-strain. We are led to correct conclusions in these cases by observing that a faultless mode of living with correct diet, exercise, etc., is nevertheless not followed by improvement or recovery. It requires self-confidence and a fine clinical judgment to base our diagnoses more on our objective findings than on the symptoms or declarations of our patients; and though this course is full of pitfalls it is nevertheless justifiable, and at times necessary to clinical success.

A very interesting form of epigastric pain occurs in young chlorotic girls who complain of more or less intense gnawing or boring in the epigastrium, increased by the ingestion of food and in many respects suggesting the pains of gastric ulcer. A differential diagnosis is not always easy, nor is it possible to define the underlying pathologic basis of this symptom. Its special features are the chlorotic background, the absence of nausea or vomiting, the localization of the pain in the median line; normal or diminished acidity of the gastric juice; marked spots of

tenderness corresponding to the seat of pain; and, most important of all, the rapid moderation or disappearance of the pain on the administration of Blaud's pills and Fowler's solution. Whether this pain is in reality a true gastric neuralgia, or situated in the celiac plexus and not in the stomach at all, is as yet a matter of surmise.

A form of epigastric pain accompanying arteriosclerosis is not uncommon, but is little noticed in the textbooks; nevertheless it is deserving of very careful attention. Elderly patients often complain of a crampy feeling just beneath the ensiform cartilage, coming on usually after meals when any exercise is indulged in. Even slow walking suffices to arouse the pain, which ceases as soon as the patients stand still or sit down. The peculiarities of this symptom are as follows: it affects only those who are advanced in years; it is most troublesome during the two or three hours which follow the ingestion of food; it is not accompanied by local tenderness or by valvular lesions of the heart; or by dyspnea; the digestion is very slightly if at all impaired; and it is a very obstinate symptom, resisting all methods of treatment and lasting for months and years. Arsenic, potassium iodid, and nitroglycerin are alike unavailing. It does not affect the general health, but remains as a very annoying symptom. Van Valzah and Nisbet ascribe this symptom to the gastric localization of the arteriosclerosis, and liken it to the ordinary muscle-cramps of this condition. A few illustrative cases are briefly outlined.

Judge H. S., aged about 75 years, still robust and actively pursuing his vocation, sought my advice in 1898 for symptoms resembling those just stated. He was a hearty eater, a good digester, and of very temperate habits. After his meals, walking almost always produced a boring or crampy pain in the epigastrium just below the ensiform cartilage. His pulse-rate varied from 60 to 66, and his arteries were only slightly hardened. Occasionally he had a trace of albumin in his urine. Restricting his meals, sedative and alterative drugs, and nitroglycerin were all

tried and proved useless; and during the two years he was under my care the symptom did not vary, nor was his general health in the slightest degree impaired.

Mr C., of Dayton, aged 67 years, has been troubled for some years with fairly severe epigastric pain accompanying any exertion. His heart is sound, his arteries slightly altered, his pulse-range 60 to 66, and his urine of low specific gravity, but always free from albumin. He has rigidly dieted without benefit, and has taken many drugs in vain. His gastric functions and his gastric secretions are perfectly normal. The symptom is much more marked after meals. His vigor and general health are far above the average.

Mrs R., aged 49, consulted me last year complaining of "stomach cramps," or cardialgia, whenever she walked. The pressure at the cardia disappeared the moment she stood still. She had been long treated for dyspepsia without benefit. Her pulse was frequent, slightly irregular, and the heart-force below par. There were no murmurs. Myocardial degeneration was probably the underlying cause of this symptom, which has been greatly relieved by potassium iodid.

We cannot be too careful in estimating the significance of pain in the epigastrium. It is a symptom never to be considered slightingly. In some cases it is associated with the substernal pains of anginapectoris, and may be the herald of severe or even fatal cardiac disease. Occasionally we locate in the stomach epigastric pains situated in the left lobe of the liver. Let us be constantly on guard, and not indulge in the common error of ascribing, off-hand, pains in this region of the body to the stomach or to gastric disturbances; but rather let us give to the subject of epigastric pain the same careful study that we do to pains in the head.

DISCUSSION

Dr U. H. Hon, Bloomington, Ind.: I have listened with a great deal of interest to the paper presented by the doctor. It is certainly a well-written paper, and I waited just as I do when reading authorities on these subjects, but the very thing I waited for I did not get. That these questions are of importance cannot be gainsaid, that we

should always be on guard is true—but we do not know what brings these pains on. We do not know when to treat with medicine, we do not know when to diet and when not, we do not know when we should operate. One patient will have pain in the stomach every day, his brother may have pain in the stomach which may come on every week, it may come on every month and it may cease for a period of three years and then return, or it may never come back again. The doctor has advised that patients should be careful as regards their diet, and recited a case in which this was done. Now one will have jaundice, and he will have gallstones, another will have gallstones without jaundice and vice versa, and we are advised to be careful. Where are we, when are we to act, and what must we do? I have treated many cases of this sort and have never operated. I have occasionally said, "You have gallstones beyond question." A week or so afterward some physician would say, "You are not as sick as you think you are," and weeks afterwards the gallstones have apparently passed away, and my diagnosis I still think was right—so now?

Dr Henry W. Bettman, Cincinnati, closing: I am sorry we have only one question proposed by the gentleman. The question as to when an operation should be done in these cases is one to be settled by the physician in charge. If the attacks occur frequently or are of great severity, *and intelligent medical and dietetic treatment has been used without avail,* then an operation can be recommended to the patient. Of course an operation would not be indicated when the symptoms remain mild. I think each individual case is a law unto itself.

A Limited Number of Observations on the Serum Treatment of Pneumonia

BY JOSEPH EICHBERG, M. D., CINCINNATI

The mortality-rate of pneumonia, as observed in American hospitals for the past decade, has been so appallingly high, that clinicians have been forced to ask themselves whether the death-rate were not steadily increasing, either as the result of an increasing virulence or because of the radical change in the treatment; a departure from the prac-

tice of the fathers, so marked that the mere recital of the older plans of treatment would introduce drugs wholly unfamiliar to many of the present generation of practicians, not to mention the fledgling students. And in the front rank of the older practice it is proper to speak of bleeding. I quote from the article on Bleeding in Jaccoud's Dictionary of the Medical Sciences. "Tommasini of Bologna practiced 14, 15 and even 20 blood-lettings of 4 to 500 grams, say about a pint each, in the course of an attack of pneumonia, of from 5 to 8 days." The patients are thus relieved of about twenty pounds of blood.

But the most ardent champion of the method was Broussais. Broussais recommended bleeding in frank pneumonia, and in tubercular pneumonia; particularly at the onset, but also during the course of the disease, and again at its close; principally in subjects of good physical development, and highly commendable for those of frail habit.

Bouilland had scarcely less reserve. He bled the first day, and the second and the third, if the pneumonia was not "jugulated," whatever that may mean, and he resumed operations on the fourth day; the general rule being not to discontinue the bleeding until after the decline of the fever, and the cessation of pain and digestive disturbances. And many patients triumphed over both the disease and the physicians.

If now, in conformity with the modern pathologic doctrine of its causation, we regard the symptomatology of the disease as due in great measure to the effect of toxin circulating in the blood, we can understand how such a constant and excessive withdrawal of blood might yet be of benefit merely by a direct reduction of such poisonous principles. It is needless to recall the rapid absorption of fluid from the body tissues, when considerable amounts of blood have been withdrawn.

This resorption of fluids, of which the patient's great thirst is a tangible expression, still farther dilutes the toxic principles of the blood. The good effects of bleeding could

thus be explained in harmony with the more modern pathology on strictly logical grounds.

With the gratifying success which has attended the use of antitoxin in diphtheria, of the serums, preventive and curative, for the bubonic plague, of the antistreptococcus serum, and the serums for tetanus and yellow fever, it was but natural that the profession should apply similar methods to the treatment of a malady which from every point of view might well be regarded as the type of infectious diseases. The brothers Klemperer were the pioneers in this line of work, and suggested that the sudden change which comes over the patient at the time of the crisis was due to the development in the blood of chemical substances which neutralized the toxins incidental to the multiplication of the *diplococcus pneumoniae*.* To this mythical chemical substance the name of antipneumotoxin was given. It was in 1891 that the Klemperers, Foa and Corbone, Emmerich and others proved that the blood-serum of rabbits immunized to the pneumococcus possessed the property of protecting other rabbits against infection with this microorganism, and these investigators have continued to use rabbit-serum in the treatment of human beings suffering with pneumonia.

Washbourne in England had inoculated a pony with successively larger doses of cultures of the pneumococcus, using at first broth-cultures heated to 60° C. for an hour, following these with living cultures. From the pony he obtained the serum used, having first tested its strength in protecting rabbits. English observers have used Washbourne's preparation.

Weisbecker in Germany published three years ago the results obtained in a number of cases from the use of a serum taken from human beings then convalescent from pneumonia, a procedure open to the obvious and cogent criticisms that the danger of communicating syphilis or other

*They used filtered bouillon cultures or glycerin extracts of pneumococcus growths.

blood disease is altogether too great to justify its general employment.

In Italy DeRenzi and Pane obtained exceptionally virulent cultures of the pneumococcus from which they developed a serum, using the horse, the ass, and the cow as subjects for inoculation, drawing their supplies of serum from these.

In our own country the manufacture of an antipneumococcus serum has been undertaken on a commercial scale by the H. K. Mulford Co. With great liberality they have placed an adequate supply of the material at my disposal, for the purpose of giving it a full and impartial test. In a letter received they state: "Our antipneumococcic serum is an antiinfection serum; that is, it is made by the injection of the horse with live cultures, and is antagonistic to the germ itself and not to the toxin of the germ. All laboratory experience shows that the pneumococci do not elaborate strong toxin, and all laboratory animals die from the diffusion of the germs and not from toxemia, the pneumococci being found in the meninges, middle ear, and in parts far removed from the local adhesions in the lungs."

It would then appear that anything like the uniformity already obtained in the manufacture of diphtheria antitoxin has not as yet been secured in the productions of the pneumonia serum, and variation in results may be in part explained by inherent difference in the serum employed. The Mulford Company further make the statement that all anti-infectious serums retain their strength only for a limited period, differing in this respect from antitoxins, such as diphtheria and tetanus antitoxin. The fresher a serum, therefore, the better.

The antipneumococcic serum, which might for convenience be simply called the pneumonia serum, should according to all observers be employed in fairly large dosage, frequently repeated. The curative dose is 20 c. c. which according to direction is to be repeated every four (4) hours. Nearly all observers attest its harmlessness as far as any

immediate ill effects are concerned. Washbourne has reported the occurrence of an urticarial rash in several instances. It is further claimed that some immediate improvement should be noted in the form of lowered temperature, relief from pain and dyspnea, and the lessening of cough and expectoration; and the instructions accompanying the Mulford serum are to give a full dose of 20 c. c. every four hours, until some tangible impression has been made in one or other of the directions indicated.

General experience has shown that the use of the serum will not precipitate the crisis, the disease running its course for about the usual number of days, with greatly diminished severity.

Weisbecker, however, believes that early injection may abort the disease. It must be conceded that early diagnosis is not always possible, and that the use of the serum in doubtful cases is greatly to be deprecated, as vitiating the results of what bids fair to be a most promising field of therapeutic inquiry. The employment of the serum does not of course exclude the use of other remedial agents, medicinal or otherwise, though its real value can only be tested by employing it to the fullest extent, making use of other measures rather as adjuvants.

The range of applicability of the serum would seem to be coequal with the distribution of the disease. Thus it has been successfully employed in aggravated senile pneumonia, in pneumonia of pregnant women, and in pneumonia complicating various forms of cachexia and acute rheumatism. That there is a place for some remedy in addition to those already possessed by the profession may appear from a hurried inspection of mortality tables.

NEW YORK HOSPITAL

1895	108	cases	38	deaths	equals	36%
1896	75	"	41	"	"	41%
1897	97	"	24	"	"	24%
1898	87	"	26	"	"	29%
1899	67	"	20	"	"	29%
1900	102	"	35	"	"	34%

Average 32.16% for last six years.

JOHNS HOPKINS HOSPITAL

1889	6 cases	3 deaths	equals	50%
1890	8 "	0 "	"	0%
1891	14 "	3 "	"	21%
1892	6 "	1 "	"	16⅔%
1893	28 "	10 "	"	39%
1894	22 "	8 "	"	36%
1896	30 "	10 "	"	33⅓%
1897	19 "	5 "	"	26%
1898	22 "	6 "	"	27%

Average for Johns Hopkins Hospital 28.40% for seven years; only 155 cases in seven years.

ROOSEVELT HOSPITAL

1896	91 cases	45 deaths	equals	49%
1897	84 "	23 "	"	27%
1898	91 "	41 "	"	45%
1899	101 "	33 "	"	32%
1894				29.1%
1895				31.6%

Average for six years 35.6%

PENNSYLVANIA HOSPITAL

1897	62 cases	12 deaths	equals	19%
1898	76 "	11 "	"	14%
1899	78 "	13 "	"	16%

Average for three years 16 1/3%

BOSTON CITY HOSPITAL

1891	296 cases	100 deaths	equals	33%
1894	290 "	93 "	"	32%
1893	528 "	218 "	"	41%
1895	328 "	124 "	"	37%
1896	424 "	138 "	"	32%
1897	351 "	111 "	"	31%
1898	374 "	135 "	"	36%
1899	447 "	159 "	"	35%

Average for eight years 34.6%

ST. BARTHLOMEW

1895	121 cases	13 deaths	equals	10.7%
1896	108 "	12 "	"	11%
1897	181 "	15 "	"	8%
1898	146 "	18 "	"	12%
1899	135 "	13 "	"	9%

Average for five years 10%

CINCINNATI HOSPITAL

1895	56 cases	20 deaths	equals	38%
1896	98 "	37 "	"	37%
1897	51 "	13 "	"	25%
1898	35 "	10 "	"	28%
1899	59 "	27 "	"	45%
1900	38 "	13 "	"	34%

Average for six years 34.5%

Our own city hospital furnishes a very large mortality. It is easy to juggle with figures, but we have included under pneumonia all forms, such as influenza pneumonia, the terminal pneumonia of Bright's, etc.

The serum treatment of pneumonia has not found an acceptance that was wholly uniform. This was to have been expected. In the early history of diphtheria antitoxin many a bitter cry was made against its use from within the ranks of the profession; and the search-light of Diogenes if turned on today would discover more than a few highly respected and, in their own opinion, progressive physicians, *who do not believe in antitoxin*—or the telegraph or telephone, or the locomotive or automobile. Pane's mortality in 30 cases was 9%, Weisbecker reported in all 17 cases with 17 recoveries. DeRenzi reported 32 cases with 29 recoveries, possibly using some of the same material as quoted in Pane's tables. Wilson gives parallel reports of two series of cases, one treated with, the other without the serum. Of eighteen cases in the former class, the mortality was 22.27%, of the latter there were 20 cases with a mortality of 20%. Besides these there are a few scattered cases from English observers, mainly favorable in termination.

The natural tendency is to institute comparison both as regards treatment and results between every new form of serum and the antitoxin of diphtheria. In regard to the pneumonia serum, there are more difficulties primarily in the matter of diagnosis, as all of us know. We can see the patch on the pharynx, tonsil, or uvula; it is a more difficult matter to recognize the initial physical sign of pneumonia,

and if, as is maintained by some, it shall appear that early administration counts for as much in pneumonia as in diphtheria, the responsibility of the physician becomes the greater. By so much more will the success of the treatment depend on the individual capacity of the examining physician. It remains to be seen in this connection whether a coagulating reaction with blood-serum on the lines of the Widal reaction may not be available as an aid to diagnosis.

Today we stand but on the threshold. Some time must elapse ere the collective experience of the profession shall crystallize into definite shape. In therapeutic matters, professional sentiment grows up from multiplied individual observations. So must it be here. If the hopes of its advocates are realized to the utmost, it may well be questioned whether in one direction at least the use of the serum is a boon to humanity. For pneumonia is in one sense the friend of old age. It promptly snuffs the candle instead of allowing it to feebly sputter in the socket; and the advocates of the Malthusian theory might well protest against the prolongation of life under conditions, which, now that Nature has marked the limit, would be purely artificial. But these are problems of a transcendental philosophy. Pneumonia claims too many victims from the best, most vigorous, and most useful period of active manhood. A death-rate of from 20% to 40% in a disease constantly endemic in the temperate zone is appallingly high; should the new discovery maintain itself, it will be another marvelous gift of science to the closing decade of the nineteenth century.

I report several cases. In one, the only one in private practice, the treatment was not fairly carried out, owing to protests of the family. I saw the patient for the first time on the fifth day. One injection was given; another ordered for the night was not permitted in my absence. There was some improvement for two days, then a gradual decline, though a second injection was given as soon as the symptoms became more threatening. Of the other cases, the ··tories are appended.

One objection has already been urged against the use of the serum, namely the quantity necessary for each administration, 20 c. c. for adults, the dose being repeated every four hours. If the apparent harmlessness of the serum be taken into account, the momentary inconvenience to the patient, resulting merely from distention of the skin with so large an amount of fluid, should not be allowed to weigh as against possible benefits to be derived.

In connection with the cases which recovered, I would like to call attention to the almost complete cessation of cough and expectoration soon after the administration of the serum. The process of resolution in the consolidated area was accomplished apparently without any liquefaction, for no moist sounds were heard, though the consolidation was manifestly clearing. Efforts to institute blood-counts, with a view to observations on leukocytosis, failed because of the prompt clotting of blood in the counters. Examination of stained cover-slips showed an enormous increase in the number of blood-plates. Thanks are due to my colleagues of the clinical staff for material placed at my disposal.

SYNOPSIS OF CASES

Case 1. Admitted May 16, 1901. R. K., aged 25, male, a jockey of powerful physique met with an accident six weeks ago when a horse fell with him and rolled over on the right side of his chest. There was pain for a day or two. He has had syphilis and he drinks. Two days before admission he had chills and pain in the chest, and there was slight cough on admission. His face was flushed. R. 22. T. 101.6°. P. 80. Slight increase of tactile fremitus in right axilla. Vocal resonance also increased on right side. Cough dry, no expectoration. Pain in chest increased on coughing and taking deep breath. Was ordered calomel gr. ½ hourly. Codein given for pain.

May 17. Yesterday afternoon slight hemoptysis with cough. Temperature last night rose to 105°, R. 36. Fine crepitant râles at right base posteriorly. No dullness on percussion. Was given 20 c. c. of serum at noon and 4 p. m. Sputum in early afternoon prune-juice in character. Cough and pain in chest relieved after serum injection. During the

afternoon and all through the night, the patient was delirious.

May 18. 20 c. c. of serum at 8 a. m., 1:30 p. m., and 5 p. m. Bowels moved three times yesterday. Whole right lower lobe, posteriorly, consolidated. Blowing respiration. Bronchophony. Passed 58 oz. urine in 24 hours.

May 19. 20 c. c. at 7 a. m. Mind perfectly clear, feels very well, slight cough, scarcely any expectoration. No pain. Temperature at midnight 101°. This morning at 6 a. m. 103.6°. Physical signs unchanged.

May 20. Passed a very good night. Temperature at 6 p. m. yesterday 97.8°. Passed 44 oz. urine in 24 hours. Temperature at 6 a. m. 98.4°, Resp. 18, P. 66. Very few scattered moist râles heard over right lower lobe. Breath sounds no longer blowing. No cough, expectoration or pain.

May 21. Feels very hungry. Anxious to get out of bed. Condition apparently perfectly normal.

May 22. Insisted upon discharge. Said he must travel with his horses, and was able to do so. Became very fractious, and was dismissed. Able to walk without any signs of weakness. Left the hospital and the city the same day.

Case 2. In the practice of my friend Dr J. H. Landis, received but one injection on the morning of the fourth day. This was followed by a fall in temperature lasting 48 hours. Crisis occurred on the 14th day. The patient was a young man of 17, an express-wagon driver. 24 hours following the crisis, patient had articular pains and slight delirium. Some muscular pains in back and extremities, that gradually disappeared on the third day.

Case 3. C. B. V., a boy eight years of age, had passed through a severe attack of acute articular rheumatism just one year ago. This was complicated by a very severe endocarditis, pericarditis with effusion, and lobar pneumonia, affecting the whole of the right lung. Convalescence was very slow, and left him with a marked mitral insufficiency and considerable dilation. Almost a year after his first attack, a second attack of rheumatism occurred. No sign of cardiac involvement, but on the eighth day the boy again developed a pneumonia, now involving the left lower and upper lobes. There was no special feature indicating the onset of this complication, except the sudden development cyanosis and dyspnea. The respiration rose to 60, occa-

sionally somewhat more rapid. There was great restlessness and marked bluish coloration of the lips in contrast to the almost waxen pallor of the face. No improvement occurred for three days. There was neither cough nor expectoration, but the consolidation slowly extended. On the third day he received 10 c. c. at 4:50 and 9 p. m. On the next day, two injections of 10 c. c. each at 11 a. m. and 3 p. m. On the following day two more injections each of 10 c. c. at 12 noon and 4 p. m. The consolidation persisted without change for six days longer, when the bronchial character of the breathing changed, and resolution quickly occurred. During all this time there was neither cough nor expectoration. The rheumatism continued with diminished severity. No increase of the cardiac trouble was noted. One week after the last injection, the boy developed a severe urticaria lasting for several days.

The father of the boy, himself a physician, said that he firmly believed the serum saved the boy's life. After each injection there was a notable improvement, not always measurable in pulse, respiration, and temperature, but very apparent in the general comfort of the patient.

Case 4. Male 32. Colored, teamster for brewery. Admitted to hospital May 28, 1901. Heavy drinker. Patient delirious, pain in side, fever, cough. Man of strong physique, slightly jaundiced, wild delirium, has to be strapped to bed. Lips and tongue dry, glazed, and cracked. Resp. 40, temperature 104°, P. 96. Severe cough, bloody mucopurulent sputum. Dullness, bronchial breathing, bronchophony over left upper lobe. Urine, trace of albumin, 1.022.

March 29. Very restless and delirious all night. At noon today received 20 c. c. of serum. Temperature 104°. Patient became wildly delirious in the afternoon, so that he had to be removed to the strong ward. Temperature at 10 p. m. 99.2°.

March 30. Delirious, but much quieter than yesterday. Temperature 100°. At noon received 20 c. c. of serum. Some dyspnea. Slight change in physical signs. Dry crepitation heard over dull area today.

March 31. Temperature at 6 a. m. 101°. Last night at midnight 105°. Patient seems to have had crisis. No expectoration.

April 1. Still delirious. Physical signs unchanged. No cough.

April 2. A few moist râles over area of dullness. Bronchial breathing no longer heard, but has given place to puerile respiration.

April 3. Improving rapidly.

April 4. Appetite good. Eruption of herpes at left labial angle.

April 6. Only vestige of trouble is a harsh, slightly prolonged expiratory murmur.

April 8. Patient permitted to leave bed.

Case 5. A. W. Female. Housewife, married, aged 44. Admitted March 28, 1901. Complains of pain in the side and shortness of breath. Father and one sister died of pneumonia, one sister of throat trouble. Never seriously sick before. No venereal history. Denies alcoholism. Onset two days ago with pain in shoulder, chills lasting an hour, and severe pain on right side. Fever, headache, cough. On admission temperature 103.8°, pulse 90, resp. 36. Cheeks flushed, expression of suffering on face, *alae nasi* move with inspiration. Short, restrained cough, rusty sputum. Pain in right side and shoulder. Tympanic dullness over right upper lobe. Breath sounds in this area suppressed. Vocal resonance and fremitus greatly increased over area of dullness. Ordered strychnin, whisky, and codein.

March 29. Much pain and dyspnea. Temperature 104.2°, at 3 p. m. 105°, at 6 p. m. received 20 c. c. of serum.

March 30. Less pain in side. Temperature this a. m. 102.4°. Less dyspnea. Perspiring freely. Little change in physical signs. At 12:30 p. m. temperature being 102.8° received injection of 20 c. c. serum. Grew delirious immediately afterward, and has been wildly delirious for remainder of day.

March 31. Quiet and comfortable. Temperature 99.2° this a. m. Physical signs unchanged. p. m. pulse 22, respiration 22, temperature 102°.

April 1. Delirium more marked. Mental condition bordering on coma. Roused with difficulty. Temperature 99°, pulse 124, respiration 13. Urine normal. Died at 5:30 p. m.

Case 6. A. H., aged 18, male, barber. Admitted March 27, 1901. Pain in left side and fever. Began two days ago with chills, pain in left side with severe racking cough. Temperature 103.4°, pulse 112, respiration 32. Dullness on percussion over left base posteriorly. Bronchial breathing and bronchophony over this area.

March 28 at 3 p. m., temperature being 104°, received 20 c. c. of serum.

March 29. Temperature declined steadily since injection. This a. m. temperature 100.8°. Redux crepitus at extreme base. At 11:30 a. m. received 20 c. c. more of serum. Temperature 101.6°. Soon became slightly delirious, then wildly maniacal, so that he had to be strapped to bed.

March 30. Still violent and delirious. Passing urine and feces involuntarily. Dullness, bronchial breathing, and bronchophony at right apex. At noon again received 20 c. c. of serum. At 6 p. m., temperature being 104°, received 20 c. c. of serum. Since morning patient has received plunge-bath of five minutes' duration at temperature of 103° every three hours.

March 31. Plunge-baths continued through the night, temperature last evening 104°. This a. m. 99.6°. Quiet, rational. Crepitation heard over solid areas.

April 1. Rested well. Plunges discontinued yesterday. Dullness over left apex anteriorly and posteriorly to 1½ inches below spine of scapula. Breath-sounds harsh and puerile. Temperature 100° this a. m., last evening 103.4°. Perspiring profusely. This p. m. temperature 98.6°, apparently passed through crisis.

April 2. Slept all night. Slight dullness at left apex. Scattered dry râles. No cough or expectoration. Temperature 99° all day.

April 3. Normal resonance on percussion. Harsh expiratory murmur over left apex. No moist sounds heard at any time over affected area.

April 4. Normal vesicular breathing. Allowed to sit up. In the convalescence the boy developed an urticaria which lasted forty-eight hours.

The Cardiovascular System in Interstitial Nephritis

BY W. J. CONKLIN, M. D., DAYTON

In interstitial nephritis we have to deal with an insidious slowly-progressing degeneration of the kidneys, which ultimately results in granular contraction and atrophy.

But beyond this, the widespread and very constant cardiovascular changes point unmistakably to some profound toxemia which renders the blood irritating to the entire vascular apparatus of the body, as well as to the capillaries of the kidneys. Although the association of disease of the kidneys with vascular lesions has been a matter of common observation since the days of Bright, there is still diversity of opinion as to the nature of the relation. The view most generally accepted regards the arteriosclerosis, which is the essential lesion of the circulatory organs, as secondary to the renal disease and dependent upon the failure of the kidneys to remove from the blood certain offending toxins.

Another view which has many supporters and is rapidly growing into favor, assigns first place in the sequence of development to the arterial degeneration, to which both the destruction of the tubular epithelium and the connective-tissue overgrowth are secondary. Both forms undoubtedly exist, and at the bedside it is practically impossible to differentiate between them.

Interstitial nephritis is the *bête noire* of the diagnostician. Insidious in beginning and progress, variable and elusive in clinical manifestations, its discovery, to the discredit of internal medicine, is far too often a matter of accident. A man in active business and presumably in good health applies for life insurance, or seeks relief from some disorder apparently far removed from the kidneys, and is found to be the victim of advanced renal disease.

Again, the ophthalmologist finds in the fundus the flame-shaped hemorrhages, or the fawn-colored radiating

patches which testify to the degeneration of the retinal vessels; or, possibly, an attack of uremia, the end-link of a long chain of vicious results, may announce the disease.

Many cases die unrecognized: disease of heart, cerebral hemorrhage, embolism or aneurism usurping its place in mortuary tables.

It is a matter of record that the autopsy findings in all large hospitals show granular kidneys to be far in excess of their clinical recognition. Startling and instructive is the result of an investigation undertaken by Dr West and recorded in the Lettsomian Lectures for 1899, in which he sought to ascertain by postmortem examination the cause of death of all persons, excluding children, admitted moribund or dead into St. Bartholomew's Hospital, London. The inquiry covered a period of five years and included a total of 79 cases, of which 48% showed the pathologic lesions of interstitial nephritis. In 16.8% it was the only cause of death, and in 21.6% more it figured as a contributing cause.

Interstitial nephritis is ordinarily classed among the diseases of middle or later life, but recent observations indicate that it is not nearly so rare in early life as has been hitherto considered. West, Bartels, Guthrie, and others have met with fatal cases in patients under twenty years of age, and Brill and Libman have lately reported one in a child of fourteen. The stealthily advancing degeneration however ordinarily requires years before sufficient damage is wrought in the kidneys to destroy life. According to Ralfe toxemic symptoms are rarely manifested until about two-thirds of the kidney-substance has been destroyed (Elliott).

The signs and symptoms, like the lesions of chronic nephritis, naturally fall into two groups, one referable to the kidneys and the other to the vascular system. Those belonging to the renal group are an increased quantity of pale acid urine, low in specific gravity, deficient in solids, and albumin and casts in variable quantity and numbers. The polyuria, chiefly nocturnal, is present from the begin-

ning of the disease and is maintained uniformly until a failing heart ushers in the terminal stage, but its onset is gradual and not likely to arouse suspicion until a late period. The specific gravity is persistently subnormal (1.016-1.010). There is a decided decrease in all of the solid constituents of the urine, but the loss in urea and the phosphates is the most significant.

The total solids may be roughly estimated by the use of Haeser's coefficient (2.33) but it is far better to determine each separately, using the centrifugal method of Purdy for the chlorids, carbonates and sulphates. The daily output of water and urinary solids is the best guide to the functional capacity of the kidneys, and is a far more important factor in prognosis and treatment than the usual chemical and microscopic tests.

Those cases of so-called renal insufficiency in which a persistent reduction in the elimination of urinary solids is the only appreciable departure from health are always open to suspicion. With rare exceptions, the failure in elimination stands for the initial stage of an interstitial nephritis, of which corroborative proof will sooner or later be forthcoming. It is to be hoped that the great diagnostic value assigned to cryoscopy of the urine by Koranyi of Budapesth, Claude and Balthazard of Paris, Casper of Berlin, and Kümmell of Hamburg shall be confirmed. If so, we will have a comparatively easy method of determining early the permeability and the functional activity of the kidneys which is the key to the situation in every case of renal disease, medical or surgical.

The finding of albumin and casts is of immense diagnostic value and should be diligently sought, but too much stress must not be put on their temporary or permanent absence. Albumin is never abundant, and often appears only as a trace. It may be present in one specimen and wanting in the next. It may be absent during the entire progress of the case, or be found only in the third stage when a broken compensation makes diagnosis a matter of

little moment. Neither will it do to ignore the sharply-discussed question of physiologic or cyclic albuminuria, which numbers among its advocates many able clinicians.

It is certainly not overstating the case to say that he who bases an opinion on the examination of a single specimen of urine, no matter how or when obtained, will often be misled.

The distinctive tube-casts are the narrow hyaline and pale granular varieties. They are rarely numerous, usually very sparse, and on account of their delicate, nonrefracting structure, quite difficult of detection. They are variable and intermittent in appearance, being absent for days and weeks and without obvious cause recurring in irregular showers.

In a few well-defined cases casts are absent or, at least, not discovered during the course of the disease. These cases are, however, comparatively rare since the advent of the centrifuge: in fact, hyaline casts can often be obtained from the sediment of urine voided by presumably healthy persons, past middle life, provided it is very highly centrifuged. If these statements be true it follows as a logical sequence that to make an early diagnosis in interstitial nephritis, when, if ever, treatment can be more than palliative, we must look beyond the urinary findings.

The lesions of the cardiovascular system which stand out prominently in a study of interstitial nephritis are sclerosis of the arteries and hypertrophy of the left heart. Whatever may be the exciting cause of these lesions, about which there is still much discussion, the fact remains that they are never absent in fully-developed cases, are often the earliest and most constant of the clinical manifestations, and may be detected when urinalysis yields negative results.

The effect of the arteriosclerotic process is to produce hardening of the walls of the vessels, to impair their contractility and elasticity, to increase intravascular pressure, and ultimately to lead up to hypertrophy of the heart. The fibrosis is general and progressive, but affects the arterioles of different parts and organs of the body in different

degrees. With few exceptions thickened arteries and a pulse of high tension may be accepted as cardinal signs of cirrhosed kidneys. Although the two are commonly associated, a distinction between them should be made. In both conditions the artery is firm and not easily obliterated by pressure, is distended between beats, and can be rolled like a cord under the finger, but when the blood-current is shut off the vessel of high tension disappears, while the one with thickened walls remains almost as tangible as before. West places the highest value on the thickening of the arteries, and holds that if it is not an early indication of granular kidneys there must be some form of arterial disease of which we, at present, know nothing. Increased tension is always found in pronounced cases of chronic interstitial nephritis, but what concerns us more is the fact that it is equally characteristic of the initial stages. Go back as far as we may, says West, as soon as the diagnosis is possible by any means the pulse tension is high and the arteries thickened. The consensus of opinion among late writers is to reassign to high tension the diagnostic value which was accorded it years ago by that brilliant clinician, Mahomed. We are now speaking of those cases in which the arterial tension is persistently raised.

Unless constant, it has little diagnostic importance, and yet frequently-recurring temporary increase in blood-pressure without obvious cause should not be ignored. As a rule, it points to the presence in the blood of some irritant like uric acid, alcohol, lead, or the toxins of chronic infections, which in itself often bears a causal relation to Bright's disease. In any event, increased arterial tension, temporary or permanent, may be a sign of serious import, either as a signal of impending danger or as proof of an incipient interstitial nephritis.

Paradoxic as it may seem, a certain degree of high tension is desirable in renal cirrhosis, and a sudden fall in pressure, unless due to a transient and palpable cause, is of bad omen. Low tension means a failure in heart action with

diminished elimination of urine and urinary solids, increased albuminuria and the probable onset of uremic explosions.

A decided increase of tension in the superficial vessels can be estimated by the educated finger with sufficient accuracy for ordinary purposes. The finer grades can only be detected by mechanical means. There is need of some simple and easily adjusted device for measuring and recording blood-pressure. The instruments of Marey and Von Basch are complicated and require special training to obtain reliable results. The tonometer recently invented by Gaertner of Vienna and described by Dr Shaw in the *Medical News* (March, 1901) seems to be the simplest and best instrument yet proposed for the purpose, judging from the favorable reports of its use in foreign clinics.

The lesion of the heart characteristic of interstitial nephritis is hypertrophy, simple in form and limited to the left ventricle. The right side of the heart does not become involved until late in the disease, and even then if the enlargement is marked it is oftener due to dilation than to simple hypertrophy. Neither do valvular defects and murmurs occur except as sequels of an antecedent endocarditis or of the myocardial degenerations which follow obstructive lesions. With few exceptions idiopathic hypertrophy, that is hypertrophy without valvular disease, is due to contracted kidneys. The enlargement, at times, attains an extreme degree, but is not found in every case. Authorities differ as to its frequency. Purdy places it at 75% of his cases; Gallabin at 80%; Kauthack and Holmes at 90%; and Osler has never met with a well-marked instance of renal sclerosis without some hypertrophy. Its detection by percussion is difficult when associated with pulmonary emphysema, a fairly frequent complication.

In its lesser degrees cardiac hypertrophy is recognized not so much by the abnormal area of dulness, or the downward and outward displacement of the apex, as by the accentuation of the second aortic sound, with or without duplication of the first sound. This accentuation, high in

pitch and sharply metallic in quality, is heard in the second right interspace, and is brought out distinctly by comparing the sounds of closure of the aortic and pulmonary valves heard respectively to the right and left of the sternum. Its detection is always suggestive of a chronic nephritis and in many instances it is available in diagnosis before enlargement of the heart or increased pulse-tension can be positively determined.

The cardiac hypertrophy is a conservative process, the result of nature's kindly efforts to overcome peripheral resistance and to compensate the renal deficiency, but it also marks the beginning of a vicious circle of degenerative changes in the cardiac structures which are widespread and lethal in tendency. When the obstruction grows too great to be overcome by the power of the hypertrophied heart, the walls of the latter yield and there results dilation of its cavities with relative insufficiency of the valve-leaflets. This takes place in every case of chronic interstitial nephritis which is not prematurely cut down by some intercurrent disease, after which the well-known features of a chronic valvular lesion dominate the clinical picture. Seen now for the first time it is practically impossible to tell whether the primary lesion was of heart or kidneys.

It does not fall within the scope of this paper to discuss in detail the treatment of interstitial nephritis, but merely to point out a few of the indications which come from the lesions of the vascular system. It is, however, within the bounds to say that the condition of these organs practically dominates the therapy of chronic kidney affections.

On the one hand, there are no drugs which can remove from the kidneys the excess of intertubular connective-tissue or restore the crushed secreting structures, and on the other hand stands the fact that a large proportion of chronic nephritics die directly from diseases of the heart and bloodvessels. Ordinarily, when the patient seeks the physician, hypertrophy of the heart already exists. "The dangers most to be apprehended are cardiac failure, rupture of the smaller

arteries, especially those of the brain, and the development of uremia. The first two depend entirely upon the condition of the heart and bloodvessels, the last-named in part only" (Kelly).

A typical case of granular contracted kidney, even with extensive cardiovascular lesions, will usually do well just so long as the vascular tone continues good, but any failure in this direction adds immensely and immediately to the gravity of the prognosis. So long as the vascular tone is maintained it is a question of management rather than of medication. It is a matter of so regulating the patient's daily life in diet, clothing, work and environment as to best conserve the damaged kidneys and prolong the stage of maintained compensation. Aside from emergencies, the only remedies likely to be needed during the stage of adequate compensation are the vasodilators, of which nitroglycerin, sodium nitrite and sodium iodid are the best examples.

By modifying peripheral resistance and reducing tension they become true conservators of the heart. As already stated, a certain amount of arterial tension is necessary to maintain the waning balance of renal excretion, and hence the vasodilators should be withheld until the blood-pressure nears the danger-line. Among other phenomena this point is usually indicated by dizziness, ringing in the ears, throbbing of the cerebral vessels, flashes of light, labored heart action and hemorrhages.

The fibrosis of the arterial walls renders them brittle and liable to rupture under forceful heart-action, hence hemorrhages, both visceral and superficial, are not uncommon. A severe hemorrhage anywhere in the body not only justifies a bad prognosis, but life is rarely prolonged beyond two years.

In the later stages of a chronic nephritis when we are confronted with dilated chambers, leaking valves, and serious degeneration of the cardiac muscle the therapeutic problem is quite different. Compensation once lost is

perhaps never fully restored, and yet much can be done to prolong life and to make it fairly comfortable. The paramount indication now is to improve the nutrition and tone of the heart and to lessen its work. This indication is met by absolute rest of body and mind and by giving the so-called heart tonics, of which digitalis, strophanthus, caffein and strychnin are those of choice. The latter, by virtue of its beneficial effect over general body nutrition is a safe and valuable remedy in all stages.

Like other muscles the heart is strengthened by judicious use and weakened by overwork. When compensation is broken abruptly or badly disturbed, absolute and prolonged rest in bed must be enjoined. The value of rest to a tired heart is often overlooked. We can all recall patients who have been seriously damaged by their refusal to quit business and take needed rest. After the heart has regained somewhat in tone, carefully graduated systematic exercises, either voluntary or after the method of Schott, may be undertaken with benefit.

Strophanthus and caffein are to be preferred in the milder degrees of heart failure, especially in the presence of high vascular tension, but in the graver forms when there is extreme dilation, visceral engorgement, and edema, digitalis outranks them all. Remedies of this class are, however, contraindicated so long as the compensation is good. They should be held in reserve until the heart begins to flag or to show signs of fatigue. Digitalin, and the infusion or the tincture of digitalis are eligible preparations, but if the stomach is not too irritable the infusion is to be preferred. The diuretic wine of the *Hotel Dieu* is an old but effective combination. It is composed of digitalis, squills, juniper berries, potassium acetate and white wine. It may not be amiss in this connection to call attention to the good results which follow a few doses of calomel as an adjunct to the heart tonic. It acts with special kindness when the liver is engorged and swollen and the portal circulation is sluggish. The good does not come wholly from the purgative action

of the calomel, but probably in part from its ability to destroy toxic materials in the blood or to assist in their elimination by way of the kidneys.

The effect of digitalis and its congeners in causing contraction of the capillaries and thereby adding to the blood-pressure must not be forgotten. This tendency may be met by the simultaneous administration of one of the vaso-dilators, preferably sodium nitrite on account of its more prolonged action. It does not need to be given in large doses. For the distressing attacks of dyspnea which occur on overexertion, or sometimes at night without apparent provocation, I have had good results from the following prescription of Dr Satterthwaite: Nitroglycerin, 1/100 gr., amyl nitrite ½ gr., menthol 1/50 gr. and oleoresin of capsicum 1/100 gr. suspended in 10 minims of castor oil.

However, do what we may, sooner or later, there comes a time when our efforts will be powerless to stop the relentless march to a fatal end. "But this termination can be longest postponed, the patient's interest can best be served and his condition most surely palliated by placing the heart upon a therapeutic parity with the kidneys." (Elliott).

Albuminuria for Sixteen Years Without Perceptible Impairment of Health

BY P. MAXWELL FOSHAY, M. D., CLEVELAND

The case herewith reported, while not unique, is of sufficient rarity to warrant its presentation. Particularly is this true because it suggests many points of general interest, and because the facts in the history of the case are so absolutely established.

The history of this case begins on December 11, 1884, when the subject, W. F., male, aged 30, thinking himself in perfect health, applied to the Mutual Life Insurance Company of New York for a fifteen-year endowment policy. At that time (1884) he held policies for $1,000 in the Penn

Mutual Life Insurance Company and for $2,000 in the National Life Insurance Company of Vermont, so that it is reasonable to conclude that up to that time his albuminuria had either not begun or else had passed undetected by reason of its intermittent character. His occupation it may be noted has always been that of a proprietor of a house and sign painting business.

For the Mutual Life Insurance Company of New York he was on the date mentioned examined by Dr Dudley P. Allen of Cleveland, whose report shows that the applicant weighed 150 lb., was 5 feet 8½ inches tall, had a chest expansion of 34¾ to 38 inches, and an abdominal girth of 33 inches. His pulse-rate was 92, and there were no facts of significance in either his personal history or his physical examination, except as will be noted. His family history was negative, as his father and mother were living, aged respectively 54 and 53 years; of his father's parents he knew nothing; his mother's father died at the age of 81, and his mother's mother at the age of 69, the cause in either case being unknown to the applicant; he had a brother aged 14 in good health, two sisters living at ages 27 and 14 in good health, and one brother dead at age 17 from cardiac hypertrophy. Dr Allen's report of the examination of the urine showed a specific gravity of 1.020 and the presence of 1% of albumin. The application shortly thereafter was rejected by the company.

During the subsequent years his urine was repeatedly examined by various physicians, with the result of sometimes finding albumin and at others none at all. As he felt himself to be in good health he never put himself under the care of a physician, but attended unremittingly to business, feeling rather inclined to smile at the doctors. At different times he made applications for insurance to various companies, and his insurance record, together with the occasional finding of albumin, always brought about a rejection.

My personal knowledge of the case began in November 1897, when an agent for an insurance association brought

me some of the subject's urine for a preliminary test. I found albumin, and, learning the history of the case, I advised the agent to put in his time on some more hopeful subject. This suggestion did not meet the agent's approval, however, and probably he had little confidence in my ability to test for albumin, for on the very same day he took Mr F. to another Cleveland examiner for the same insurance association, who passed him, reporting that he found no albumin. Out of charity I have always presumed that the albuminuria was intermittent, thus permitting the other examiner even on the same day to make a favorable report on the urine.

On December 10, 1900, I carefully examined this man's urine. The specific gravity was 1.024, the color was normal amber, the reaction was acid, and there was a trace of albumin and no sugar. This was, it will be noted, just 16 years less one day since Dr Allen had first found the presence of albuminuria, leading the Mutual Life Insurance Company to refuse (very properly under the circumstances) to assume the risk of a fifteen-year endowment on this man. I on this occasion carefully examined the entire sediment of one centifuge-tube of the urine, and was rewarded by finding three slightly granular, narrow, hyaline casts, but no other element of abnormal sediment.

On February 18, 1901, the Medical Director of the Mutual Life Insurance Company, Dr Granville M. White, saw the man, and after looking him over gave permission to have him again examined, requesting the examination of a number of different specimens of urine on different days, at different times in the same day, and especially of the morning urine.

On February 21 the morning urine was clear, yellow, acid, and had a specific gravity of 1.023. There was neither albumin nor sugar present. On February 24, 1901, I found the evening urine to be clear, yellow, acid, with a specific gravity of 1.018. There was neither albumin nor sugar, and no casts were present. The morning urine of February 25 was clear, amber, acid, and had a specific gravity of 1.024.

There was neither albumin, sugar or casts. At noon of February 25 the urine was clear, amber, acid, the specific gravity was 1.021, and no albumin, sugar or casts were present.

On February 27 I made a thorough examination of the subject. His personal history was entirely negative, as he had enjoyed perfect health for the sixteen years since his previous examination, with the exception of an attack of "inflammation of the bowels" in the early part of 1885 (which appears to have been a true peritonitis) and a slight attack of influenza in 1899. Neither illness left any after-effects. During the last few years his weight has increased some 10 lb. In his family history there were only slight changes since the former examination; his father was still living at age 72, his mother had died at age 63 after an illness lasting only 10 hours. His brother and sister were both still living and in good health. His weight was 159 lb. and his height unchanged. His chest expansion had not changed, but his abdominal girth had increased two inches.

On physical examination he proved to be well nourished and of good color. His tissues were firm, his muscles hard, and he had every appearance of vigor. There was no puffiness of the lower eyelids. His pulse-rate was 76, and his arteries were soft. His pulse was normal in character, with no suspicion of increased tension. His lungs were normal in every particular. The apex of the heart was in the fifth interspace well within the nipple line, the impulse was not more than normally forcible, the second sound was not accentuated, and in fact the heart in every particular was in normal condition.

As the man has always felt himself in good health he has never exercised any special care in diet, and has never been under treatment for his albuminuria. As an interesting fact it may be noted that he is very fond of eggs, keeps his own hens, and eats very freely of the eggs. Whether this habit of diet has any causative relation to his albuminuria I

have been unable positively to determine, but this explanation at least possesses elements of probability.

Here then we have, as far as can be discovered, a perfectly healthy man in whom albuminuria has occurred at least intermittently for over 16 years. This much is well established. I do not propose to speculate upon the causes nor to worry you with citations from authorities in reference to albuminuria. However, as cases of this character are not often recorded with such unquestionable history, a few general remarks may be permitted upon that form of albuminuria which undoubtedly does occur without any accompanying nephritis. Any previous doubts in my mind upon this score have been effectually banished by my study of this case.

But first it will not be out of place to say a few words as to methods of testing for albumin. A few years ago I made a considerable number of comparative tests to determine if possible for my own satisfaction the relative value of the various albumin reagents. My standard of comparison was the cold nitric acid contact, or Heller's test, because this is the quickest and readiest of all the tests. Many authorities say that Heller's test fails to discover serum albumin in many specimens in which it is present. For several years I employed one or more of the so-called more delicate tests in addition to the nitric acid contact. Of course it may be mere luck in the character of the albuminous urines that I have met, but, from whatever cause, it is a fact that I have yet to examine the first specimen of urine in which Heller's test carefully executed with a pipette has failed to discover the presence of albumin when the other tests gave any reaction. Nor have I found this test so slow in giving the typical reaction as has been said of it. For the past year I have again frequently been employing the ferrocyanid test, which I like very well, but I find it in no way superior to the nitric acid contact, except as it differentiates serum albumin from nucleoalbumin. However I am quite prepared at any time to meet with a series of cases which will shake my confi-

dence in Heller's test, so that in condescension to the authorities I continue to check off my results by the ferrocyanid or other test. Still one would think that, during the more than eight years that I have been looking for an albuminous urine that did not react to this test, the well-recognized inconsistencies of medical experience would hardly have been so very persistent as to prevent my meeting with a single such instance. But to return to our text.

Students of the subject are agreed that cases of intermittent or cyclic albuminuria are not uncommon in youths of 18 to 25, so that some have styled it the "albuminuria of adolescence." In these cases the specific gravity is uniformly normal or else above the average, and their duration is usually at most only a year or two. It is undoubtedly true that cases occur, at first quite indistinguishable from these, which finally develop true nephritis. However I think that a careful study of the specific gravity and sediment of the urine will enable a differentiation to be made without any great delay. If casts are present in great number, and especially if in other forms than the narrow hyaline variety, I should certainly not regard such as a case as benign. Another point of very great importance is the determination of the presence or absence of albumin in the morning urine. In true nephritis, excepting the interstitial form which occurs in later life with marked vascular change, the morning urine will almost always contain albumin. In albuminuria which seems merely to indicate a leaky condition of the renal cells the albuminuria occurs only during the full tide of digestion, while the morning urine in such cases is free from it.

But of still greater value in the diagnosis of these cases is a minute study of all phenomena of the vascular system. The location of the apex of the heart, the relative force and duration of the two cardiac sounds, and the arterial tension, are in my opinion of even greater value than the characters of the urine in determining whether in a given case the albuminuria is due to early structural change in the kidney

or belongs to that type of cases which we are considering. It is rare indeed that chronic insidious structural disease of the kidney continues for any length of time without the accompanying vascular changes—the increased arterial tension, accentuated second cardiac sound, and the forcible apex-beat a little to the left of the normal position. Indeed my limited observation and reading have led me to the present opinion that the condition of the vascular system is of the first importance, and that in most cases the characters of the urine are of only secondary value in making a diagnosis and prognosis. Certainly this is the case when the urine is of high or of normal specific gravity, when the quantity of albumin is small, or when the only casts present, if any, are of the narrow hyaline type; and of course it is only in just these cases that differentiation is difficult.

If I were to lay down a rule of prognosis, either for clinical or life-insurance purposes, I would say that three months' observation of such a case should determine its future course with fair accuracy. If the albumin was intermittent and of small proportion, if no casts or only a few hyaline ones occurred at times, and if the vascular system at no time during the period exhibited any abnormality, I would give a good prognosis without hesitation. In most instances I would regard the subject as safely insurable, but this latter determination must of course in all cases be left to the decision of the medical director of the company that is directly concerned. No doubt to be perfectly secure a medical director might do well to require in such cases a postponement until a period of three or six months fails to disclose any instance in which albumin is present. Such a rule, while eminently safe for the company, would entirely shut out such cases as the one that I have here reported, although the policy which was applied for by this man in 1884 would have matured more than a year ago; as, so far as can be determined, this man appears never in the 16 years of his albuminuric history to have had so long a period of freedom from that defect.

The one chief lesson then to be drawn from this case is the necessity for extreme care in studying cases of albuminuria before coming to definite conclusions as to the permanence or evanescence of the condition.

DISCUSSION

Dr E. F. Wilson, Columbus: It would be too bad to allow so good a paper to go without any discussion. I am sorry that the time was limited so that the doctor did not get an opportunity to finish his paper, and I hope in the five minutes which is allowed him for closing the discussion he will give us the end of his paper. The point which I suspected he was going to make is one which I think it most important for all practicians, and it is a point which is too often forgotten by the examiner for life insurance. I have seen a good many cases of this kind in the last two years, people who have considered themselves in good health, and upon going to a life-insurance examiner have been told that they had albuminuria and have been rejected on this account, the physician perhaps telling them that they had chronic Bright's disease when they had no Bright's disease at all. The specific gravity of their urine was normal, or slightly above normal, and there was no change or sign of a change in their vascular systems. If in examining a specimen of urine the specific gravity is 1.018 or above and a slight amount of albumin is discovered I do not believe in one case out of a hundred under the microscope will be shown any change in the structure of the kidney, providing there is no lesion in the vascular system and no increase in the tension of the arteries. This point of making an examination of the arterial system, going carefully over the heart, and noting any beginning sclerosis is of the utmost importance. It is a very easy thing to make a chronic invalid of a man who is in good health by telling him he has a trace of albumin in his urine at the time of making an examination. It is a mistake to tell these men that they have albuminuria or Bright's disease, or anything of the sort. Tell them that they are rejected for some other cause, drinking too much beer or something else, almost anything, but do not tell them they have Bright's disease or need the care of a physician, because you will surely make a chronic invalid out of a man if he is of a nervous temperament. You all know what a man is who gets worked up on the subject of his health, he is twice as bad as any woman. He becomes a great burden

to himself and a charge upon his family and friends. The point which I hope the doctor is going to make is that the prognosis is good for these patients when the specific gravity ranges from 1.010 to 1.018, and outside up to 1.025, and when there is no absolute change in the vascular system.

Dr Frank Warner, Columbus: This question of albumin in the urine has special reference to life-insurance examinations, and it does not seem to me to make one particle of difference, so far as the making of your decision is concerned, as to what the condition of the heart is, or the blood-vessels, the fact remains that there is albumin in the urine, and no applicant should be passed for life insurance when such a condition is present. Not that I believe that these cases of cyclic albuminuria are by any means going to end in the patient's death, because I am convinced to the contrary, and have been convinced of this time and again, but yet there is no way so long as you find the presence of albumin in the urine for you to accept the chances of allowing that patient to pass on through.

Dr P. Maxwell Foshay, Cleveland, closing: I do not believe that I will read the remainder of my paper, but will simply make a few remarks in closing. In regard to what Dr Warner has said I think that after a three months' observation of such cases we can determine the future course of them with fair accuracy, and if the albumin is intermittent and in small proportion, I think they may be recommended for life insurance.

I have talked over this question, which Dr Warner speaks of with the medical directors of some of the largest insurance companies in the country, and I have been somewhat surprised to find that they have arrived at about the same conclusion. If the albumin is found only a few times, and if the case is watched for a short time they will accept those cases commonly for an ordinary life policy, or sometimes they will restrict them to an endowment or other high-priced policy. I think that we should not pass a case without stating to the home office that we have found albumin, but that the company should not accept any of these cases I do not think should be stated as a broad and unqualified proposition. The decision should be made in accordance with the facts of the case with which you are dealing, and no general rule of procedure should be formulated with the idea of dealing exactly alike with all these dissimilar cases.

Why is the Present Epidemic of Smallpox Likely to Continue?

BY W. C. CHAPMAN, M. D., TOLEDO

It was after much thought that the title of my paper was given to the secretary. The question to be first considered was as to whether we have an epidemic of smallpox in the true sense of the word now prevailing in many states of the Union as well as in other portions of the world. To define the word epidemic is not easy. The mere prevalence of a disease in a community does not imply that it has become epidemic. We never say tuberculosis is epidemic, although it is always present and with attendant frightful mortality. I think the Century Dictionary is correct in its definition when it says, "A disease is said to be epidemic in a community when it appears in a great number of cases at the same time in that locality, but is not permanently present there." Or a shorter one, "A temporary prevalence of a disease throughout a community." Accepting either of these definitions it seems to me we have a widespread epidemic of smallpox, mild in character but nevertheless true variola. That this epidemic is likely to continue and appear in localities not now affected is believed to be true. A few moments of discussion may demonstrate why this condition exists and, possibly, methods may be suggested by which further spreading may be overcome. The unusual mildness of the disease frequently misleads both physician and patient. It is a fact that a majority of those affected are not compelled to take to their beds during the course of the disease, and little pain or discomfort is experienced after the initial nausea, backache and fever. This is peculiar. Even after the eruption has appeared, it is not believed to be a manifestation of serious condition, and in many cases the physician will give a false diagnosis expressing the belief that he is observing measles, chickenpox, "Cuban itch," *impetigo contagiosa* or "that new disease" so-called by many who are looking for novelty, thinking a new disease has

been discovered heretofore unknown to medicine. It is difficult to prevail upon such to modify statements made, and so by free intercourse variola extends until many are stricken.

It is often the case that physicians of years practice have never seen smallpox, and when called to attend a case do not recognize it. This ignorance is perhaps excusable when the disease is first observed, but after a number of cases have developed from a seat of infection there can be no excuse for refusal to call for expert consultants to verify diagnosis. Often too, local jealousy prevents the arrival at correct conclusions. Authorities are divided in opinion, quarantine regulations are ignored, and before long the community is in a condition of panic, and smallpox becomes epidemic. In times like these it is imperative that those competent to make correct diagnosis be called upon, they having power to enforce such measures as are considered best for protection.

It would seem unnecessary to present the question of diagnosis of smallpox to a body like this. By personal experience I am forced to the conclusion that a large number of physicians in our state are not competent to diagnosticate the disease, or if such finding is made it is with such hesitancy and reservation that it does not carry conviction. Under such circumstances proper quarantine measures cannot be established or carried out. I have found that if the disease is unequivocally pronounced by its true name there is much less resistance to the enforcement of protective measures. It is to be deplored that frequently physicians pronounce a negative opinion, many times on general principles of combativeness without having visited or inspected the patient. If these men would refrain from such expressions it would greatly assist those who are endeavoring with all power given by the statutes to control the spread of the disease and so protect the afflicted communities.

The mistaken diagnosis I have more frequently observed

is in calling smallpox chickenpox. Permit me to briefly state points of difference in the development and course of the two diseases, believing that they have few phenomena in common and that a great majority of cases can be differentiated readily.

All authorities say that chickenpox is a disease of childhood, many stating that it has never been observed by them in an adult. This has not been my experience. I am positive that I have treated a number of adult cases. When families consisting entirely of adults develop the same form of eruptive disease, it is to be presumed that we have not chickenpox to treat. When, as has been my experience, members of a household who have been vaccinated are the only ones who escape the contagion, it is almost certain that the disease is smallpox and must be treated as such. During the past month I have known of two centers of infection in northwestern Ohio where the prevailing disease was called chickenpox, a majority of the affected being adults. From these localities true variola has been carried to many communities in Ottawa and Wood counties. If a proper diagnosis had been made early and the cases quarantined, the disease would have been confined to the locality of first development. Again admitting that there may be occasional cases of chickenpox in the adult, are the initial stages of the two diseases so similar as to lead to false diagnosis? I think not. Most of the cases of smallpox, even of the mildest type, have manifested, before the eruption appeared, signs of severe backache, nausea, and fever. A few hours after these prodromes the eruption begins to show itself. In chickenpox there is in almost every case an absence of this suffering, a slight eruption being all that is noticed upon the surface of the patient's body. The most important diagnostic signs are those connected with the stages of eruption, and in endeavoring to present these to you I shall give you from personal inspection during the past two years. In smallpox the first change noticed is a slight papular elevation of the skin, usually seen upon the forehead, especially at the roots

of the hair; in a few hours the same is noticed passing downward onto the lower portion of the face, then the chest and trunk, and lastly to the lower extremities. As a rule the face presents many more papules than other portions of the body. A peculiarity of this disease is that these papules appear upon the soles of the feet and palms of the hands. I have never noticed this in any other skin eruption. On pressing these papules they seem to be situated deeply beneath or in the true skin, giving the well-known impression of an imbedded shot. In chickenpox, the eruption appears upon the trunk first, then passes upward and downward, not at nearly the same time but coming out in crops during several days. The papule is not deep-seated but is found first beneath the cuticle, umbilicates, breaks down easily, pustulates, and dries and disappears in a few days. Not so with smallpox. After two or three days the papules approach the surface and spreading out form a vesicle filled with fluid opalescent in appearance, the coatings not easily breaking down, and in every respect differing from the vesicle of chickenpox. About the ninth day the eruption becomes pustular. Umbilication may or may not be present. Slowly the pustules dessicate and by the twentieth or twenty-first day begin to drop off leaving red blotches upon the surface, which gradually fade, in mild cases without pitting and in others with pronounced pitting. It should be noted that rarely is there noticed more than one stage of the eruption present at the same time in smallpox. In chickenpox all stages are frequently seen together. I trust you will pardon me for taking your time in this brief statement as to diagnosis, but I assure you that inattention to these details of diagnosis has led to much controversy, expenditure of money, and mental and physical suffering. Mistaken and hesitating diagnosis is a prime reason why the present epidemic may be expected to continue.

A second reason why there is likely to be a continuance of the present epidemic is that, failing to recognize the disease early, ample time and opportunity is given for the

spread of the disease by contact. So from infected persons the contagion is carried to others, they to become centers from which the disease may be carried still further. A physician not acknowledging or believing that he is treating smallpox will not hesitate to go from house to house, thus himself being the conveyor of the germ.

Although rules of quarantine have been published and sent to physicians and health officers in the affected districts by the State Board of Health, it is the exception to find a locality where effective measures have been early instituted. This is not altogether the fault of the physicians, for many persons may be suffering for days with the disease before being reported, and sometimes are not discovered at all. A physician fears a mistaken diagnosis. His reputation is at stake, and never having seen smallpox he does not wish to so report and quarantine until he is able to place responsibility for such procedure upon others, who can officially order strict measures of quarantine. I can sympathize with such physicians, for it is no light matter to proclaim by placard that a family is to be shunned or that a community has become a menace to the public at large. Nevertheless it is not only a moral duty but a legal requirement that the existence of the disease be made known. A severe penalty for disobedience of the ordinances can be inflicted by the courts.

At the risk of being a little tedious, allow me to briefly mention the various steps believed to be necessary to procure effective quarantine. I do this hesitatingly because many of you better understand details than I, but my observation in many localities confirms me in the belief that inefficient quarantine is a prominent factor in the continuance of the epidemic.

Smallpox is contagious during the whole course of the disease, much less so when the papules begin to appear than at other stages. If the patient at the first appearance of the papules can be isolated, there is little danger that the disease will spread. In cities where contagious-disease hospitals

exist this can be readily done, but in the country or village perfect separation is not possible. It is therefore obligatory that the family be confined to the dwelling in which the disease has shown itself. Usually if the family is an intelligent one positive orders will be obeyed. If unwilling to obey, guards must be stationed to prevent entrance or exit. A card with the simple word smallpox tacked in a prominent place is an effective assistant. A simple sign "quarantined," does little good. Twenty-one days must elapse before the patient has recovered sufficiently to permit of disinfection of himself and the premises. A further wait of fourteen days must be insisted upon before the card can be taken down and the family allowed to mingle with the community. If others have been exposed by visiting the sick, they should be isolated for two weeks from the time of exposure and vaccinated, after which they may also go their ways rejoicing. The question frequently arises, how can a tenement be disinfected after the patient has convalesced? I confess there is no question more difficult of solution than this under certain circumstances. It may be necessary to burn a building if it is so dilapidated as to prevent thorough disinfection. Every case presents different conditions and must be so considered by local health authorities.

If isolation and quarantine be early established after correct diagnosis, I believe the epidemic will be shortened, not otherwise.

A third and last reason why the epidemic is likely to continue is the neglect of vaccination. It is discouraging to know that a large percentage of the population has never been vaccinated, some from distrust of the operation, but a majority from simple neglect. It has been many years since smallpox has prevailed in epidemic form in the United States, so that there has not been a realization of the necessity for the procedure. During the present epidemic I have rarely observed the disease in a patient who had been vaccinated. More often it has been that the vaccinated person of the household alone escapes. It is not my intention to

discuss the subject of vaccination extensively. I desire to show that disregard for the benefit to be derived from it is largely responsible for our present smallpox scare. I will not quote authors to substantiate this belief, excepting a brief quotation from a paper by Dr Herman Spalding, Chief Inspector of the Chicago Health Department. He reports in *The Journal* for February 23 of this year "that of all the cases of smallpox sent to the Isolation Hospital in the last eighteen months, but sixteen had ever been vaccinated and these had either doubtful or very old scars." This statement could be verified by other reports.

I am pursuaded that many so-called vaccinations do not protect because true vaccine disease has not developed after the operation is performed. It may seem strange to assert that many physicians do not understand that the scratching of the arm and an application of the virus is but a part of the duty assumed when the promise to vaccinate is given. It is positively necessary that the patient should be kept under observation until the crust has fallen off presumably on the twenty-first day. Inspection must be insisted upon on the seventh or eighth day and if there is not a circumscribed areolar blush encircling the point of inoculation then the vaccination has been unsuccessful and must be repeated.

It must be remembered that in order to be protective the patient must develop systemic disease. A misapprehension of the published statements of those who furnish the virus commercially is accountable to a great degree for the failure to obtain desired results. They say that with their particular product no sore arms are noticed. Of course they do not intend to convey the idea that no typical vesicles will be seen after the employment of their virus, but that no undue inflammation with accumulation of large quantities of pus should be expected. Many physicians and through them the people have taken this statement as a promise that vaccination without its typical development may be performed and act as a preventive of smallpox. There must be

the stage of incubation lasting seven days, the stage of vesiculization lasting another seven days, in which a true vesicle raises upon the arm with its attendant inflammation, extending sometimes from shoulder to elbow, to be followed by an umbilication and desiccation, the crust dropping off on the twenty-first day, leaving a reddened depressed surface which in time fades and leaves the well-known cicatrix which remains ever after to prove a true vaccination. If these stages do not become manifest then there has been an abortive attempt and the patient remains unprotected. These persons are in a hazardous condition, for believing themselves vaccinated, they place themselves in positions to develop smallpox, thus doing great injury to themselves and discrediting vaccination as a preventive measure. Insistance upon performance of the operation and close observation of all vaccinated by the physician, is a positive necessity in combatting smallpox in a community. Hesitancy in this regard is a prime factor as a causation of epidemic.

In summarizing, let me briefly state the three causes now operating all over our country most likely causing the continuance of the present epidemic of smallpox:

1. Mistaken or tardy diagnosis,
2. Failure to enforce quarantine,
3. Inattention to vaccination, either in the insertion of the virus or the lack of observation of the patient afterward.

DISCUSSION

Dr J. A. Kimmell, Findlay: I think the doctor's paper a very timely one, and the suggestions mentioned therein will save us a great deal of trouble and mortification when called to treat it. We have had several cases in our town and there was some dispute about them. There are a great many people who are calling it the "Cuban itch." Some time ago I picked up a medical journal in which the editor had thrown open his columns to the discussion of the matter, and one man wrote a letter to the journal in which he was positive that it was not smallpox and gave his reasons why it was not. He gave the symptoms, claiming persons who were vaccinated would take the disease, and he was

just as positive as could be. The next letter took just the opposite view. This doctor said he had treated so many cases, and he was certain it was smallpox. In Indian Territory they keep smallpox on tap, and everybody coming up from Indian Territory brings it along. It seems to me that the greatest discussion is not whether it is chickenpox or smallpox, but whether it is "Cuban itch" or smallpox. I do not know anything about "Cuban itch." Some of the people who have been to Cuba say they do not know anything about the disease. If the disease is smallpox, it is certainly smallpox in a very mild or modified form. Some claim that after generations of vaccination we have modified the smallpox, and that we do not have the genuine smallpox of years ago. I am sorry that I did not hear the conclusion of the doctor's paper. This disease is likely to spread through the country and every physician ought to be posted upon this matter, so that he may save himself the disgrace of making a mistake in diagnosing this disease.

Dr Byron Stanton, Cincinnati: If I were asked the question why the present epidemic of smallpox in Ohio is likely to continue, I would say that it is not altogether on account of the mildness of the disease, or the difficulty of making a diagnosis, but is due in part to the carelessness or inefficiency of the health authorities in those places where it breaks out in not properly isolating or quarantining it, or in not doing it at all. It has been my duty during the last few months to examine into three different outbreaks of this disease in the southern part of Ohio, all of them coming from cases in Portsmouth. I saw many cases last week in a town in Scioto county, and while there was no dispute as to the character of the disease among the physicians, there was no quarantine or isolation. There were two hotels in the town both open for business and in both there were cases of smallpox. The meeting of the Board of Health held on the day of my visit was presided over by the Mayor who had violated the rules of quarantine by coming directly to the meeting from his own house in which there were two cases of smallpox. Placards were not conspicuously posted, the only placard put up in one hotel was in the room where the patient was in bed. I do not think that is an extreme case, as I found just the same carelessness and disregard of quarantine and preventive measures in other places. During the epidemic in Portsmouth a domestic was allowed to leave the house where she was employed immediately after a case

of smallpox had been removed to the hospital. If this patient had been vaccinated and kept in quarantine, and not been permitted to go out into the country, it would have prevented the occurrence of 52 cases in a small village not far away. This certainly shows how necessary it is that isolation and quarantine should be thoroughly carried out, and also the necessity for vaccination.

Dr W. Stephenson, Georgetown: This matter interests me more than any subject since I have been here. We have this same trouble in our town. I do not know whether it is the fault of the Board of Health or the physician in charge. In one case the disease ran through its course without being discovered. I went up to see a second case and after I examined it I was satisfied that it was not smallpox. There were none of the indications of smallpox. Every pustular eruption is not smallpox by a long way. I told them that it was nothing more than chickenpox. I investigated the case further, and found a number of children who had played with this little child while she went through the stages of the disease, and they had had chickenpox, but they have not as yet had smallpox, and it is now over three weeks since my investigations. I am sorry to say that nine-tenths of the cases going the rounds throughout the State of Ohio are cases which, comparatively speaking, do not amount to anything as far as the sickness is concerned—some have the primary fever and none of them the secondary. The gentlemen who preceded me spoke of the doctors in the rural districts losing sight of their duty and of their neglect to carry out certain regulations. Now there is another phase to this. I think the doctor should guard the interests of his patient, and keep his mouth shut until he knows positively what is the matter. We have in our town a Board of Health; they are not physicians, and they do not pretend to be physicians, but the minute they hear of a skin eruption it is either scarlatina or smallpox, and the result is they quarantine the town and scare people away from it and stagnate business. I think we should be on our guard and look well to the protection of the people, and keep suspicious patients indoors until we are satisfied as to the nature of their disease. We had a scourge of smallpox in our town in 1871 and 1872, and we lost a number of cases. I never saw a single case which after the first twenty-four hours did not lie down in bed and suffer with an intense backache and headache, and it was impossible for them to be on their feet

after the eruption broke out. Some of my cases which died had the confluent form and some the malignant form.

In the case which I mentioned I am satisfied that the disease was chickenpox, because nobody has taken the disease and there was ample opportunity for it to spread if it had been smallpox.

Dr P. D. Covington, Bellefontaine: During the great epidemic of smallpox in 1868, while a student here in Cincinnati, through the kindness of one of our professors, Dr McVey and I had an opportunity to study the disease in the pest-house.

There is an odor, perhaps peculiar to smallpox, which has been present in every bad case that I have ever seen.

There are mild cases of varioloid which bear some resemblance to varicella. But usually, even in these mild cases, there is an apparent gravity which is absent in chickenpox.

An initial scarlatinous rash may for a short time give a case somewhat the appearance of measles or scarlatina, but the characteristic rash beginning on the forehead and wrists and rapidly extending to the balance of the body, need seldom be mistaken for anything else.

As to the protection afforded by vaccination, our observations in the pest-house led us to believe that confluent cases were nearly always in the unvaccinated, mild ones in persons who had been vaccinated many years before the attack, and very mild cases in those who had been vaccinated ten or a dozen years before contracting the disease.

In a large percentage of cases a pretty fair estimate of the length of time elapsed since vaccinating could be made by noting the grade of severity of the symptoms.

Dr Chas. Seth Evans, Cincinnati: Just one word about the odor. It has been my misfortune to see a good many cases of smallpox in my official capacity in connection with the hospital. It has always struck me that the odor was not pronounced in the first stage of the disease, at least it was not discoverable among my patients, even among the colored race. I have just come from seeing a case of smallpox and there was no odor present. It is a well-marked case down on the river. We get most of our cases here from the river and West Virginia.

I want to agree with the essayist in regard to the lamentable ignorance upon the diagnosis of smallpox. There

was a case in one of our houses of prostitution which was mistaken by one of the physicians for venereal disease and treated for three weeks by this physician. Finally the landlady got tired of it, and she called in another physician who recognized the disease. Then Dr Lyle was called in and verified the diagnosis. The only way to explain this mistake is that the first physician did not know what he saw and thought is was syphilis. That case came down from West Virginia. Our arrangements here are good when enforced. All suspicious cases are to be referred to a smallpox expert whose ability cannot be questioned, and as soon as he has made a diagnosis of smallpox, the cases can be removed to the Branch Hospital.

Dr B. F. Lyle, Cincinnati: In the differentiation between smallpox and chickenpox, or other diseases which are apt to be confounded with variola, we are not able to go back and make observations on the epidemics which occurred years ago. The epidemic of 1868 was characterized by its great severity, and you will find the same condition prevailing in some subsequent epidemics. The mortality in those first epidemics would average almost 50%. The disease this year is mild, and there is no way of accounting for it. We simply have to take it as it is. Two early symptoms during this present epidemic, no matter how mild the case, are severe headache and chill. These are very seldom absent. You may find an eruption which is confluent, or it may be very slight, sometimes the eruption will consist of but five or six pocks. This epidemic is not mild in all cases, as we have all the sequels and all of the complications that frequently come with smallpox. I have had four or five hemorrhagic cases in the past two or three years. We have had some bad complications, in one patient the eye had to be removed on account of a panophthalmia. A number of ulcerations of the cornea have occurred. You will also find that women who are pregnant will abort. This is a characteristic of the disease.

In reference to the differentiation: The time the physician is usually called is during the vesicular stage of the eruption. You know the eruption of chickenpox has a certain pellucid character, and looks as though there was a drop of water under the skin. You will find in the large majority of cases of smallpox, when it is in the vesicular stage, that it is not as bright and clear as in chickenpox, and the epidermis raised in the eruption seems to be thicker, al-

though this is not always true. Another difference between smallpox and chickenpox is that in smallpox you will not find the eruption coming out large in size immediately. Sometimes you will find a vesicle that is not larger than a pinhead, and it will gradually enlarge. I think it is this particular fact which causes so much difficulty in the differential diagnosis—this vesicle will develop in time, but it may take several days, and if the eruption is small it may cause you call it chickenpox.

In regard to the odor: I do not think that there is any odor at all if the patient is kept clean. I think the reason you have an odor is because you have pus or secretions exuding on the skin and the patient is not kept clean. I do not think there is any characteristic odor of smallpox except the odor of pus.

In the present epidemic the average length of time for the course of the disease is 21 days. This year the mortality has been about 2%. You will find some cases which will die before the eruption reaches the vesicular stage. It is a disease which must be diagnosed to prevent its spread and an increase in the mortality. Even this year there have been changes in the mortality-rate, sometimes it is a little higher than at others.

Dr S. S. Thorn, Toledo: When I was several years younger than I am now I can recall that one day Dr Mott entered a street-car and after he had walked half way down the car he said that there was a case of smallpox in the car. You may readily believe that the car was emptied sooner than it was filled. He knew a case as soon as he laid eyes on it, and there was a case in the car. In the 60's when we were passing through an epidemic of smallpox in the northwest corner of the State one of the earliest symptoms of the disease which we noticed was a mucous patch in the fauces, and then the little hard shot-like bodies appeared in the skin, and then the pains in the back and head. Now in reference to the epidemic in the State I want to say that I do not feel altogether solid upon the fact that we have in the State of Ohio a mild epidemic of smallpox. We know the people have been neglecting their vaccination duty. It is like the early duties in our church, the children get baptized and then go on to confirmation. Now the people are not altogether at fault. You will find some doctor who is very benevolent whose conscientiousness forces him to look out for the pocketbooks of his patients and incidentally his

own, and he does vaccination at ten cents per head. That means ten-cent vaccination—and that is one thing we ought to protest against. A vaccination is not done properly unless it develops in the proper way, and a physician has failed to do his duty who does not at least examine the patient on the seventh to tenth day to see whether it has taken. In this ten-cent vaccination the patient goes off thinking he is protected and they are not protected. They tell people they have been vaccinated, and we all know they have not been vaccinated unless they have the typical sore, and I want to impress that upon physicians. Charge these patients $1.00 and see them afterward to be sure tnat the work is done right. Only in this way can we protect the population.

Dr Park L. Myers, Toledo: I would like to say a word upon the timeliness of this paper upon smallpox, and to emphasize the fact that it has been clearly shown that the trouble is not so much with smallpox as it is with us as doctors. The diagnostic points were given to us years and years ago, and you can find them in any textbook. However I do not believe that smallpox as we see it nowadays is nearly so severe in character as it was years ago. We as physicians have grown careless, and we forget that the disease has been modified by vaccination treatment and hygiene, and hence do not recognize the disease as smallpox. I think the fault is largely with ourselves and I think the paper of Dr Chapman is certainly very timely; and I hope it will awaken us to the real situation.

Dr W. C. Chapman, Toledo, closing: I agree with the most of what has been said. In regard to the smell of smallpox, I do not believe that it has a distinctive smell. I do not know it from any other pus smell. There is nothing to my mind pathognomonic of smallpox in its smell.

It is astonishing when you go through the country to find the ignorance concerning the difference between chickenpox and smallpox. Of course this want of knowledge contributes very much to the spread of the disease.

There are two points I wished to bring out in my paper, which I did not get time to mention. One of these is in regard to quarantine. We have no quarantine in the State of Ohio against smallpox, until it is forced upon the communities by those who go there in the interests of the health of the people. Another thing, which is very much neglected, and that is vaccination. Dr Thorn struck it exactly

right when he said that much of the vaccination which is done is not vaccination at all. A doctor puts the vaccine virus on the arm, and never sees the patient again. The patient goes away, and thinks that he is vaccinated, exposes himself to smallpox, and is very likely to take the disease. This doctor damages himself, the community, and also vaccination as a protective measure.

I am sorry that I was so slow in reading my paper, but the three points which I wished to emphasize, viz., first the necessity of recognizing the disease, as many otherwise competent physicians are not able to diagnosticate smallpox from chickenpox. Second: the disease must be quarantined, and quarantined early. Third: vaccination must be insisted upon, and it must be properly done. A mere scratch on the arm is not enough, the point of vaccination must be thoroughly scarified. After the vaccination is done the physician must see the patient on the seventh or eighth day, and watch him until the crust comes off. A few years ago the doctors were very careful about getting the crust from one child in order that they might use it on the next. As this is never done now the result is not known.

Another thing: Some of the manufacturers of vaccine virus have published articles and circulars stating that with their virus one will not have a sore arm. Doctors as well as the people think that they need not have a sore arm if vaccinated. If they do not have local manifestations on the arm it has not taken. Manufacturers do not mean any such thing, they simply mean that you do not have the pus formation because they get rid of the streptococcus in their virus. If a person is vaccinated the virus must enter the system, and the symptoms must be characteristic of successful vaccination.

The Prevention of Typhoid Fever in Villages and on the Farm

BY C. O. PROBST, M. D., COLUMBUS
Secretary Ohio State Board of Health

To reach conclusions as to the measures to be taken to prevent typhoid fever in villages and on the farm it is necessary to first consider the etiology of the disease, and with special reference to rural districts.

While it has not, possibly, been established beyond all question that the Eberth bacillus is the direct cause of typhoid fever, the proof of this is so nearly perfect that it will be safe to assume that this is the cause, and to base preventive measures, in large part, upon what is already known of the behavior of this bacillus under different conditions.

It may be stated, then, that the *bacillus typhosus*, gaining access to the system of a susceptible person, grows and multiplies, and in so doing produces the train of symptoms to which we give the name of typhoid fever. These bacilli are voided by the patient, and by infecting other persons perpetuate the disease. This means that every case of typhoid fever must have had a direct or indirect relationship to a preceding case.

By what channels do these germs find exit from the body of the patient? Until recently it has been taught by the rectum only, and that they were to be found only in the stools. Numerous observers have now shown that typhoid bacilli are present in the urine of typhoid-fever patients—not in all cases, perhaps, but in 25% to 30% of them. This fact is of vast importance in considering preventive measures. It would appear that enormous numbers, many millions of bacilli per c. c., may be excreted in the urine, which gives large opportunities for infection of water, soil, etc., by typhoid urines. It seems that when the disease processes invade the urinary system in typhoid, as by setting up a cystitis, the urine may remain infected for months, and even years, during all which time the patient is a source of danger to others.

An extremely important fact, if it be a fact, is the assertion that it is possible for the typhoid bacilli to pass through the alimentary canal of a person without producing any symptoms of disease. Thus a perfectly healthy individual may carry the disease from an infected to a non-infected community. The possibility of this occurring is given full credence in the recent very excellent report of

the commission appointed to study the cause of typhoid fever among troops called out during our war with Spain.

What becomes of these unthinkable numbers of typhoid bacilli that are being constantly produced and excreted by typhoid-fever patients? In villages and on the farm they are usually placed in privy pits, upon the surface of the ground, buried in the ground, or thrown upon the manure-heap. It is assumed, for the present, that disinfectants are not used.

It is highly desirable that we should know how long these germs may retain their vitality and pathogenic properties under various conditions. Our knowledge here is unfortunately rather lame, although this question has received much study. The typhoid microbe soon perishes if thoroughly dried. It has been shown, however, that typhoid stools may be dried so as to break down into dust, capable of being transported with other dust by the wind, without destroying the vitality of the typhoid bacilli contained in the stools. When buried in the soil the bacillus may remain active many months, and perhaps still longer. It appears that in soil containing certain products of decomposition—notably nitrates—the microbe will live much longer than in pure virgin soil. This is very significant of the cause of the continuance of typhoid fever in communities where the soil is badly polluted.

How long the typhoid bacillus will live in water is unknown. It is easy to sow the bacilli in sterile water and determine how long they will there survive, but this cannot be done for water as ordinarily found in wells, springs, streams, etc., because it is practically impossible to recapture and identify typhoid bacilli placed in such waters. This question is of more concern to cities which obtain drinking water from streams or lakes. It concerns the topic under discussion, however, as regards the length of time a well, cistern or spring, once infected, may remain infected.

It is uncertain how long the *bacillus typhosus* may remain viable in privy vaults. Apparently it soon dies in

ordinary sewage, but if nitrates are added to the sewage a favorable medium is formed. It is to be remembered that not only do typhoid bacilli retain their vitality outside the human body, but that they also multiply under favorable conditions.

To produce typhoid fever it is necessary that in some manner the specific microbe shall gain entrance to the alimentary canal. Even where the disease is produced by inhaling infected dust, the germs are doubtless washed into the alimentary canal from the mouth or pharynx..

It may now be asked, What are the various media by which typhoid bacilli may be conveyed to the alimentary canal? Water will easily come first, though I am inclined to believe that too much stress has been laid upon polluted water as a cause of typhoid fever. This has made us careless, or rather indifferent, to dangers in other directions. There are numerous ways in which wells, springs, or cisterns, which usually furnish drinking-water for villages and farms, may receive typhoid bacilli. In hundreds of places in this state one may find the well or spring on low ground, with no proper protection against surface water, and on higher ground the privy without a vault, or a vault overflowing. On the farm convenience of access most frequently determines the location of the well. The same reason fixes the location of other necessities of farm life, so that well, privy, barn, hog-pen, chicken-coop and manure-heap are grouped within conveniently short distances of one another.

How far typhoid germs may be carried through the soil beneath the surface is uncertain. Some soils are excellent natural filters and may indefinitely protect wells against danger from an adjacent privy-vault. This would not hold good of other soils. The abominable practice exists in some places of using abandoned wells for privy vaults. Some years ago a large malt-house burned at Piqua. Wells for several squares adjacent to the malt-house contained, temporarily, substances formed from the water and burned malt that gave to the waters color, taste,

and odor. It could not be affirmed, of course, that typhoid bacilli might have been carried under ground the same distance.

Direct openings may be made to the well, so that the filtering properties of the surrounding soil are destroyed. In dry seasons clay soil may form deep cracks about the well site. Roots of trees may penetrate it. Burrowing animals may open channels to it. In some locations wells are in rock, with little or no earth-covering to act as a filter.

Milk is a not uncommon carrier of typhoid. Milk is especially dangerous because it affords a most favorable medium for the growth and development of typhoid bacilli, which may be a rapid one. There are several ways in which milk may become infected. The daily yield of a dairy is a variable one, the quantity of milk a cow will give depending upon the weather and other conditions, and a deficiency may be made up some days from the barnyard well. The mere rinsing of milk-cans with infected water may infect the milk.

If a cow drinks water containing typhoid bacilli, (and many of them do) is it possible for them to reappear in her milk? Such investigations as have been made on this subject indicate that this does not occur. However, we know that in man the bacillus passes through the kidneys and is found in the urine. It has been shown recently that typhoid bacilli may traverse the intestinal tract of a man without his having typhoid fever, and it is reasonable to suppose that the bacilli may pass through the intestines of a dairy cow and reappear in her feces. To witness the straining of milk is to have ocular evidence that it usually contains particles of cow manure. If it is possible for this manure to be infected with typhoid bacilli in the manner indicated, here would certainly be a method of milk infection. A careless person nursing a typhoid-fever patient, who in any way handles milk, may readily infect it.

There is still one other source of milk infection, both at the dairy and at the home of the consumer, and that is

by flies that have access to typhoid-fever stools. The agency of flies in carrying typhoid infection will be again referred to further on.

The author investigated cases of typhoid fever on a farm near Sandusky in which the disease was apparently conveyed from person to person in a somewhat exceptional manner. The father of the family conceived the idea that by drinking the urine of a typhoid-fever patient one could prevent having the disease. Consequently, a member of the family having contracted typhoid fever, he compelled the others to drink her urine, and showed his good faith by drinking some of it himself. My recollection is that no member of the family escaped the disease. One death had already occurred. The sanitary condition of the dwelling was something horrible. A hospital was erected in the orchard; the family were all removed to it, and all recovered.

Any article of solid food may be infected and convey typhoid fever. An outbreak of this disease among the members of the National Guard of Pennsylvania, while in camp, confined to one mess, was thought to have been caused by bread infected by the hands of the cook, who was suffering from a mild attack of the disease. Celery, lettuce, or other vegetables eaten uncooked, may be infected, either by washing them in polluted water, or by the manure frequently used in their cultivation.

Any article of food, cooked or uncooked, may have typhoid bacilli deposited upon it by flies. Quite an exhaustive study of this subject has been made by Dr L. O. Howard, who has published the results of his observations, in part, in the *Popular Science Monthly* for January, 1901. Seventy-seven distinct species of flies were found by actual observation to be dung feeders, while thirty-six species examined breed in human feces. Of over 23,000 flies captured in rooms where food was exposed, nearly 99% of them were the common house-fly. This fly finds a most excellent breeding-place in horse manure, which is a

favored larval food. Not only may typhoid bacilli be carried upon the bodies, and especially the feet and proboscides, but they may also be found in the excrement of flies feeding upon typhoid stools.

It was noted in the study of the causes producing typhoid among troops in camp during the late war that there was a marked decrease in the number of cases following changes in weather which caused the flies to disappear. The same fact was noted by the English Commission which has been studying typhoid fever among English troops engaged in the Boer war.

Typhoid bacilli may be conveyed to the mouth by the fingers, directly or indirectly. Every surgeon knows how difficult it is to sterilize the hands. Inexperienced nurses of typhoid patients not infrequently contract the disease. As the typhoid bacilli remain alive in clothing some months, the mere handling of articles soiled with typhoid feces or urine is a source of danger.

What has gone before on the origin of typhoid fever will point out, without extended comment, the measures that should be taken to prevent it. These might be divided into those belonging to the attending physician and those that should be enforced by the public authorities. On the farm everything is practically in the hands of the attending physician. While the State Board of Health has issued simple printed instructions for the prevention of typhoid fever, and widely distributed them, it is probable that they are seldom read except when the disease is actually present in the family; and at such times the instructions of the physician will have greater weight.

Of first importance is the disinfection of typhoid excreta—feces and urine. This belongs to the medical attendant, who, doubtless, directs that this be done, but it is very frequently neglected. It is to be feared that often the physician does not sufficiently impress the family with the great danger of neglect to follow instructions. The epidemic of typhoid at Plymouth, Pa., with its 1100 victims

and 114 dead, was due to the neglect to disinfect the stools in a case of typhoid near the city's reservoir. New Haven, Conn., is now suffering from a serious epidemic, due to a similar cause. Other examples could be cited to teach the disastrous consequences which may follow a failure to enforce disinfection in typhoid fever. Often the stools are simply buried, and the urine thrown upon the ground. Antiseptics are frequently used where disinfectants are demanded.

Not only the excretions, but the sick-room and its contents, after the death or recovery of the patient, should be thoroughly disinfected. Special attention should be paid to bedding, clothing, etc., that has been in contact with the patient. While the disinfection to be practiced following typhoid fever ought to be looked after by the health authorities, this will seldom be done in rural districts, and especially for typhoid fever, so the physician should charge himself with this duty.

After disinfection the measure of most importance is to protect drinking water against pollution. There is scarcely any excuse for polluted drinking water on a farm except laziness. It is nearly always possible to so locate and construct the well as to render it safe from all contamination. The family physician should endeavor to teach our farmers this fact. The necessity for extreme care to prevent milk infection, especially when typhoid occurs upon the farm, will suggest itself.

In villages we must still depend upon the family physician to guard against typhoid infection spreading from the patient to other members of the household, and to some extent, at least, to prevent its communication from one family to another.

It is much more difficult to protect the drinking water in villages than on the farm. The ground on which old towns are located is usually riddled with privy-pits. The common practice when a pit becomes filled is to cover it over with earth and dig another one. The microorganisms

which decompose organic (fecal) matter and convert it into inorganic matter are nearly all found in the upper layers of the soil, so that these masses of buried filth may remain unchanged for long periods. The hole-in-the-ground privy ought to be abandoned. A tight brick vault can be constructed above ground, or tight boxes, with the use of dried pulverized earth or ashes, should be substituted. Frequent cleaning should be required. These measures of safety are now fully within the powers of local boards of health. Physicians have it within their power to greatly aid these boards to carry out such measures.

With unfavorable soils in old towns it may be almost impossible to have a well free from pollution. A cistern, properly constructed to prevent the entrance of ground water, is often preferable for drinking water. Other sources of soil and water pollution should be guarded against, such as garbage and household slops, rotting manure, leaky house-drains, etc. Soil will inoffensively dispose of a certain quantity of such matters, but may easily be overburdened and become permanently polluted. It will be recalled that typhoid bacilli will live a much longer time in polluted than in unpolluted soil.

To sum up conclusions it may be said:

1. There should be a complete disinfection of both fecal and urinary discharges in typhoid fever, which should be done as soon as they are voided. The sick-room itself and contents should also be disinfected, and special care be taken to prevent infection of the hands of the nurse.

2. Sources of water-supply are to be guarded in every way possible, and the soil protected against excessive pollution, even where water-supplies are apparently not endangered thereby.

3. Food should be protected from flies; and the screening of houses for that purpose should be advocated as a necessary sanitary measure.

4. After all, it is to the educated careful family physician, far more than to the health officer, that we must look

for the protection of the inhabitants of farms and villages against a disease which is there so largely due to neglect and faulty sanitary conditions of the home.

DISCUSSION

Dr Frank Warner, Columbus: It seems to me that this paper is of too great importance to allow it to pass without some discussion. One thing in the paper which struck me especially is the different modes of infection. Heretofore we have been taught that the chief mode of infection in typhoid fever was simply through the pollution of water by the feces. From time to time different writers have stated that the infection might be carried into the system in other ways than by the water we drink. Dr Probst has now made it so plain that there can be no doubt that there are many ways in which the infection can be carried into the system. There is one question that I should like Dr Probst to answer in his closing discussion, and that is—what shall we do with the water we drink to prevent typhoid fever?

Dr C. O. Probst, Columbus, closing: I have nothing to add to what I have said in my paper, except to answer the questions that were asked me. It is a fact that we have a great deal of typhoid fever in the rural districts, and I believe that most of this can be prevented. There is no reason why we cannot have pure cistern and well water on farms unless the soil is polluted by man. In our villages it is much harder to keep the water-supply pure and clean. I am inclined to think that the water from springs is much safer than the water from the ordinary well. As to infection through the air, the soldiers in Chickamauga were infected with typhoid fever through the dust in the atmosphere. The excreta from typhoid patients were allowed to dry and afterwards mingle with the dust, and the infection of typhoid fever may take place this way as well as by the other methods which I have mentioned.

Some Experience with the Salts of Gold

BY JOHN E. SYLVESTER, M. D., WELLSTON

The salts of gold were introduced into medicine by the French nearly a hundred years ago. They have been especially used in obstinate syphilis, chronic skin-diseases, nervous diseases of the melancholic and sclerotic types, and

various other rebellious disorders. Nearly all the earlier references are to French authors. Trousseau writes favorably of gold. Not much notice of it is given in the works of English and American writers. The therapeutic pessimist, Stillé, twenty years ago said, "It is unnecessary to enter into any detail respecting a medicine which has deservedly fallen into disuse." But Bartholow, with that pleasant positiveness which is such a comfort to the physician in times of doubt and danger, gave a very favorable account of gold and pointed out that it was serviceable in sclerosis wherever developed. On the other hand an anonymous item in the *Medical Record* for September 29, 1888, says, "There is probably not a sound clinical observation showing that gold possesses any special therapeutic efficacy in any disease."

I do not intend to rehash all that has been written pro and con on the subject for the last hundred years. It is in the literature and open to you. Suffice it to say that so far as I have been able to learn by personal observation gold as a therapeutic agent has been practically almost entirely unknown to the medical profession until within the last ten or fifteen years. During that time it has been thoroughly advertised as the basis of certain proprietary preparations, and the impression has been given that no other preparations are of value and that no other manufacturers are able to make solutions of gold that are deserving of confidence. There is danger that many may be led to believe that these proprietary preparations are the only ones that have any merit or have been used. Nearly all that has been written or spoken on the subject in late years has had reference to the secret preparations, and unfortunately much of it has been so tainted with commercialism as to lead us to doubt the reliability of all of it. Hence I have felt impelled to record some of my experiences without exploiting somebody's goods.

For a number of years I had pills prepared in three thousand lots, each pill containing 1/16 gr. chlorid of gold

and sodium, and 1/4 gr. extract aconite. The aconite was added by Bartholow or some previous writer to prevent the occurrence of auric fever. Finally I found in the market reliable tablet triturates of chlorid of gold and sodium, and later I have used in some cases solutions of bromid of gold and arsenic.

Case I. In April, 1879, my attention was called to a fifteen-year-old girl who had been sick all her life from hereditary syphilis. She had been under the care of competent physicians and had spent several months in a hospital in Columbus. She was a short, undersized girl, with thick repulsive features. She was almost blind from corneal opacity, both tympanic membranes were gone, vomer eaten away; neck, groins, and knees showing eleven large scars from old ulcers. She had never menstruated. Her mind was becoming dull and latterly a persistent cough had set in. As a matter of experiment as well as charity, I took the case. She was given dilute nitric acid with bark for a few weeks to tone up her appetite, and to give me time to decide what to do. With some difficulty I procured chlorid of gold and sodium and made it into pills, each containing 1/20 gr. with 1/4 gr. ext. aconite. She took one three times a day. Promptly one after another the eleven large scars opened to their fullest extent into running sores. To them I applied iodoform ointment and continued the internal treatment. After some weeks the sores began to heal and her general condition to improve. Her mind became brighter and her cough ceased. In six months she had grown four inches taller, and menstruation was well established. She developed rapidly into a large strong healthy woman although of course badly scarred. She is now the mother of a healthy bright boy ten or twelve years old.

Case II. About sixteen years ago I was consulted by a refined well-developed young woman nineteen years old. Menstruation had become gradually more and more scanty, till it then lasted but part of a day, and was preceded and accompanied by several days of intense pain. I gave her the gold and aconite pills three times a day for three or four months. Menstruation became more and more abundant each month until normal, and the pain decreased in an

inverse ratio. A relapse two or three years afterward was promptly relieved by the same treatment.

Case III. In 1892 I was called in consultation to see a young man twenty years old who had been a hard drinker several years and for two months had had ascites. I found the abdomen enormously distended, the liver somewhat enlarged and tender. Cathartics and diuretics had failed to control the accumulation, and the distress and weakness of the patient were becoming extreme. For certain reasons I had been somewhat interested in cirrhosis of the liver and had never been able to get much comfort from reading about the prognosis of it. I therefore told the physician that I knew nothing that would cure the patient, but recommended a trial of gold and sodium. The other medicines were stopped, and the pills of gold and aconite given three times a day. To the surprise of all of us, the accumulation speedily began to disappear and in three weeks was all gone. Since then he has had two or three attacks of hemorrhage of the stomach following indulgence in whiskey, but is generally in fair health.

Case IV. A druggist, aged 57, who had been a steady, but, as he claimed, moderate drinker, sent for me in consultation. I found him with an enlarged but firm liver, skin decidedly jaundiced, and abdomen largely distended with fluid. He had been sick for a number of weeks, and was getting worse. We gave him in addition to his other medicine tablet triturates of gold and sodium, and he steadily improved. The ascites entirely disappeared, but he lost thirty or forty pounds of flesh and remained at 150 or 160 pounds. Two or three years after he again became ascitic. A mutual friend, a druggist, learned of me by inquiry what he had taken before and sent him a supply of tablets. I afterward learned that these were taken without the knowledge of his physician who congratulated himself upon the prompt improvement that followed.

Case V. Edna C——, aged 11 years, had inflammatory rheumatism in December, 1899. Endocarditis followed, resulting in mitral insufficiency, rapid action of the heart, deficient renal secretion, and albuminuria. In June, 1900, she was anasarcous and became steadily worse. When I saw her on September 25 she had a rapid and hypertrophied heart, with a very loud mitral systolic murmur.

Dyspnea was so bad that she could not lie down. The urine was quite scanty and highly albuminous. Heart tonics and diuretics were apparently without effect, and it was thought that her death would probably occur within a few days. She had used digitalis, nux vomica, potassium iodid, lithia, calomel, and the usual remedies for such cases. The attending physician, Dr W. R. Moore, had on hand a solution made in Columbus, each five drops of which contained 1/64 gr. bromid of gold and the same of bromid of arsenic, and this three times a day was the amount we gave her. She has continued it with intermissions until the present time. We continued her previous treatment, adding fl. ext. apocynum cannabinum. In 48 hours the dropsy was almost gone, and the kidneys acting quite well. The change in the swelling was so prompt and apparently excessive as to alarm her parents. The treatment has been continued with some minor variations for seven months. She now has no albuminaria, eats and sleeps well, and is free from anasarca. The heart has undergone compensatory hypertrophy, and the loud systolic murmur of course still persists. We hope that the growth of the next few years may in a measure repair the damaged heart, and restore her to comparative health.

I have tried the salts of gold in cases of locomotor ataxia, but have not observed the good effects reported by others. I have not had occasion to use them in diabetes mellitus, but I notice very flattering accounts of the results obtained by the use of bromid of gold and arsenic in such cases.

The above are a few of the most striking of my experiences related from memory and without any attempt to write a statistical essay. I have never met with auric fever and only once with auric salivation. In that case a woman of sixty years had such a profuse flow of saliva whenever she used the chlorid that it had to be discontinued. I have not tried to write a complete treatise on this subject, but only so much as may lead the profession to study a neglected remedy which will serve them in cases that are generally considered almost hopeless.

AUTOTOXEMIA

BY WILLIAM W. PENNELL, M. D., FREDERICKTOWN

Autotoxemia is a condition of the bodily health modified by the absorption of harmful substances from the intestinal or genitourinal tracts into the blood, poisonous substances originating within the body as the result of either defective metabolism and elimination, or of fermentative and putrefactive processes, or both, and producing well-defined symptoms.

It is not intended to insinuate that the body is a laboratory from which issue many poisons and that it is necessary that all the forces of the body are kept busy, normally, to prevent systemic catastrophes, but it is believed that the natural forces of the body are able to cope with the ordinary influences within and without itself, and that so long as these conditions exist there is good health.

Putting aside every harmful agency not autogenetic, the resisting powers of the body may become weakened by continued assaults from certain materials originating within itself, and, by entering the circulation, doing mischief in distant organs.

Often such cases may be seen in the teething of children. Some contend that the results of dentition are simply reflex phenomena through the nervous system, but to my experience the absorption of materials occurring in not a few children increases the amount of solids in the blood which are faultily eliminated, and this is the cause of the "reflex" symptoms such as fever and nervous disturbances, which are but the efforts of nature seeking escape from its tormentors.

Again, we see these cases in the child with cholera infantum or in the adult with cholera morbus. The fermentative changes in milk fed to children explain the many infections of the intestinal canal, and should warn us, from the various bacterial forms that swarm in such an inviting

medium, to withhold it as long as the alvine discharges are offensive. The names of cholera infantum and cholera morbus might easily be laid aside from the nosologic lists and we might substitute a name more in harmony with the cause. Purgatives, eliminants, and antiseptics with perhaps more than usually favorable cases enable me now to say that in twenty-five years a fatal result in cholera infantum has not been met.

Not unfrequently we see autotoxemia following in the wake of deficient menstruation—foul-smelling discharges, nervousness, coldness of feet and hands, and burning of feet with constipation. In such-like the surgeon with septic conditions—good drainage, eliminatives, and support—brings about equilibrium of the body.

The manner in which these disturbing influences are evolved is not well understood, but that there is a production of substances in the tissues or in the intestinal tract from imperfect combustion or from bacteric influence, few of which are known and many are unknown and some of which are highly poisonous, is well recognized.

The end-products of metabolism are poisons, and they must either be decomposed or have speedy discharge, or else their accumulation occasions illness. The possibility of convulsions and death from autotoxemia, as a medicolegal question should not be overlooked. It has been my misfortune to witness death from poisoning of autogenetic origin in patients in whom the kidneys were deficient in eliminating power. The constant elimination of intestinal toxins through the urine must in time result in diseased kidneys from the irritation that is engendered, and later on the production of toxemia. Hence, putrefactive and fermentative processes in the bowels in a subject having imperfect kidneys are liable to be followed by dangerous symptoms if the effect of diuretics cannot be obtained.

While it is true that bacteria are rarely found in the blood yet few are there that have not seen the outcome of the emigration of some form of microbe, and almost at the

same time recognized that the toxins of these minute organisms are capable of infecting parts distant from their origin.

Unquenched thirst or abstemiousness in water drinking will cause the system to drink at whatever fountain is nearest, which in most individuals is the intestinal tract. Under this head it is fair to mention that the accumulation of ingesta in dilation of the stomach, with its accompanying fermentation and production of a number of acids and gases, may lead to endosmosis of fluids into that viscus, which is the opposite state that obtains in constipation of the bowels if we except the periods when nature sets up a diarrhea to purge herself of intestinal accumulations. Ask your constipated, sallow-faced, pessimistic patient with the odorous breath how much water he drinks, and he will tell you he rarely drinks any. He is an object of commiseration. He is a sort of compound engine, using the same fluids twice before their final release. The materials in his jejunum and ileum are liquid and semiliquid as in the ordinary well-ordered individual, but down in the colon a gradual withdrawal of the fluids begins and continues until little more than the solids remain. Is it any wonder he has the headache, is morbid, and has the backache with tender points on each side of the spine which he imagines originates in his kidneys? He is more than half right for those organs are overworked to help keep the body clear of harmful materials. This man takes cold easily, dreads impotence, has palpitation of the heart, and gastric distress. He is bilious, having attacks of vertigo; has a muddy skin, and above all, has a breath like the emanations of a vault. In the female, in addition to these symptoms we find leucorrhea and quite often irregular and suppressed menstruation. And, if either has a phthisical tendency the toxemic condition increases the asthmatic attacks, and both are, for the same reason, liable to diseases of the skin. It is well known that dyspeptic, constipated persons are subject to a troublesome erythema as a result of intestinal infection. I remember a boy with an obstinate constipation whose

erythema presented the appearance of scarlatina, and a woman whose erythema resembled erysipelas more than anything, yet intestinal treatment readily disposed of the ailments.

It is when this annoying skin affection is accompanied with fever that its nature is more perplexing because neither the stomach nor the bowels present any warning note. A key to the situation is often offered by the concurrence of nettle-rash which is more often toxic than neurotic—just as acne and pruritus are toxic more than gastric. But the most distressing skin affections from intestinal absorption is the erythema. This symptom is usually symmetric and may present a vesicular character; the urine is scanty, of high specific gravity and contains indican and ether-sulphuric acids, and its successful treatment requires adequate eliminatives and intestinal antiseptics.

The habit of spirit drinking not only produces intoxication but it is also the cause of many autotoxemias. It matters not whether wine or other liquors are used in moderation or in excess, the symptoms of toxemia are sure to follow, expressing themselves in obscure pains, weakness, inability to sustain continued effort, dyspepsia, diminished physical resistance, and often obesity, all of which are as often ascribed to other causes. These patients suffer from neuralgia—a pungent reproach of the nervous system—which the sufferers call "rheumatism," or are the victims of mysterious chills which are explained away under the term "malaria." In these matters abstinence works the cure which is frequently ascribed to other agencies.

Lithemia or modified gout belongs to this category of maladies. Owing to defective metabolism of the nitrogenous substances the blood becomes charged with morbid materials, principally of the uric-acid group. Remembering that uric-acid decomposition is the main source of urea, and that urea is the end-product of tissue-metamorphosis, it is easy to see that when this decomposition fails to ensue the

uric acid accumulates in the blood, producing digestive and nervous disturbances—a uricemia—and only differs from the true gout in the absence of local symptoms and deposit of urates about small joints. The effect of this accumulation of uric acid upon the gastrointestinal functions, upon the urinary secretion, and upon the nervous system need not be mistaken, but ought to be typical of other toxic states of the body due to other metabolic defects or to fermentative and putrefactive changes in the alimentary canal.

So pronounced are the features of this disease that they are often mistaken for separate difficulties. The dyspepsia, the gastralgia, the lumbar pains, the insomnia, neuralgia, sluggish circulation, and mental hebetude might easily be treated for long periods as distinct disorders, but when the lithemic state is observed no easier or more brilliant cures are made.

The time was when biliousness and hepatic torpor were regarded as diminished secretion of the liver, but for the most part are now looked upon as autotoxemias. Some writers maintain that the liver and intestinal wall protect the body against the forces that are evolved by fermentation and putrefaction in the intestines from bacterial action. And no doubt they do for long periods in given individuals. Patients we all have had in whom these processes went on from year to year without producing much inconvenience. But there comes a time when the antiseptic power of the liver and the resistance of the intestinal walls become insufficient or exhausted, and the hurtful materials leap across the barriers in increasing numbers, and either find their way into the blood or act reflexly by irritating the nerve-endings in the intestines. The liver as a "detoxicator" is supposed to stand guard over the intestinal tube, discharging its duties by storing, destroying, or excreting poisons. No doubt this is, for the most part, true. The very fact that the bile is the natural intestinal antiseptic leads us to the conclusion. But bile readily decomposes when exposed to the air, hence the necessity of keeping the

liver healthy, that its bile may possess its protective power in the highest degree.

Well-marked instances of autotoxemia are to be seen in those states in which jaundice is a prominent symptom. The highly-offensive condition of the feces shows that the antiseptic power of the bile has been withdrawn. The slow pulse, the chills and feverishness, are the result of toxins from the bowels, and not from the advent of bile into the blood.

Likewise, certain states of the bowels supervene when the discharges are very offensive, when it is evident the bile is not sufficient in antiseptic or germicidal power to cope with the forces it is supposed to overcome. These states occur in those individuals who tax the protective cordons of the body to the uttermost. They eat more than they need—more than can be assimilated—and the surplus furnishes the conditions favorable to the resulting toxemia.

The theory of antitoxin is always a beautiful one to contemplate, yet its sphere of action is hedged about with conditions. If a person were to continue imbibing poisons or producing toxins continuously, and we had to persist in the use of antidotes and antitoxins I fear health and immunity would not ensue. Possibly the occurrence of toxemia in the lower animals is altogether unknown, especially when they are permitted to choose their own food and surroundings, but in man who has cultivated appetites for dishes that appeal to the taste and sensation alone, when satisfaction solely is sought in gormandizing or in the consumption of large quantities of unnecessary foods and beverages, and these are coupled with late hours or inadequate exercise and perhaps needless exposure, the liver as a detoxicator and the intestines as impregnable walls, participate in the physical degeneration and perform their sentinel duties remissly.

The treatment of these conditions is foreshadowed in the references to them. Some of the medical brethren I have seen decry the benefits of intestinal antisepsis when

plainly demanded and believe they are not practicable. Yet I have known these same brethren to administer drugs with one purpose in view and the remedies would bring about results in a far different manner than was calculated, unconsciously to the administrator. Let me refer to an article which we most all use, but not for its antiseptic or antitoxic virtues as applied to the bowels. However, our intentions do not hinder its exerting its influence in directions where it is not sent. I refer to the use of creosote in tubercular patients. It is the antitoxic effect of this drug upon the bowels of such patients, whereby legions of intestinal toxins which swarm there are prevented from infecting the body and accelerating the general decline, the appetite is increased, digestion is promoted and nutrition receives new impetus. This seems to be the sole action of creosote. There are other remedies we use that correct morbid processes through avenues differing from our ideas of their action. Water, calomel, resorcin, salol, betanaphtol, magnesium sulphate, and colonic flushings are agents at our command to cleanse the body not only of highly-prejudicial materials, but also of giving renewed vigor to weakened resistance.

CHAPTER IV—SURGERY

HYPERTROPHY OF THE PROSTATE GLAND

BY HORACE J. WHITACRE, M. D., CINCINNATI

The paper which I present to the Society today is a contribution to the study of hypertrophy of the prostate gland undertaken under the belief that no more direful malady exists in our category of surgical diseases, and that the accomplishment of a cure for this disease would be one of the greatest boons ever bestowed by medical science upon suffering humanity.

My paper is from necessity of time-limitation a fragmentary one, and deals only with a few of the important points in this vast field. The contribution represents the results of a study of a large number of patients under palliative "catheter" treatment, a limited number of operated cases, and an anatomic study of the normal and diseased prostate glands of all patients coming to autopsy in the Cincinnati Hospital during a period of several months, as well as a study of the prostate gland in the fetus, and in some of the lower animals.

The name "hypertrophy" of the prostate gland I believe must stand in the nomenclature both from time-honored acceptance and because we are not yet certain of the etiologic factors which must determine its exact classification among pathologic processes. Ziegler defines hypertrophy "as an increase in the substance of a tissue or organ, brought about by an increase in or multiplication of its elements in such a way that the structure of the hypertrophied tissue is similar to, or at least does not materially differ from that of the normal." I would make one suggestion in the controversy as to classification, namely, that the border line of the processes of tissue hyperplasia, and of that

concerned in the development of benign tumors approach each other very closely.

The prostate gland is an irregularly-shaped glandular structure situated at and completely encircling the neck of the bladder and first inch of the urethra. It is developed as an outgrowth of the lower end of the Wolffian duct in the embryo, and is therefore a *sexual gland*. Anatomically it is usually described as consisting of two *lateral lobes* situated on either side of the urethra, and of a median portion or lobe developed in the posterior commissure joining the two lateral lobes at a point immediately underneath the neck of the bladder. I wish to call attention to the fact that glandular tissue is often present in the anterior commissure, and that this area possesses a considerable degree of pathologic importance, as I will demonstrate later.

The physiologic function of the organ has been conclusively demonstrated to be a purely glandular one, and its secretion has the double function of diluting the thick testicular secretion, and of stimulating the spermatozoa to action. The removal of the prostate gland causes sterility.

A discussion of the morbid anatomy of hypertrophy of the prostate gland in its entirety would take us far beyond the scope of this paper, since it must needs consider all those anatomic changes in the bladder, genital ducts, ureters, kidneys, and the general system which constitutes the real importance of hypertrophy of the prostate gland (Fig. 1). The hypertrophy in itself is harmless, but like the benign tumor of the brain it is death producing, because of its location and mechanical effect.

My remarks on morbid anatomy will be confined to the changes within the gland itself.

The microscopic lesion may be described as a fibromyoadenomatous hyperplasia. The first change seems to be an increase in the size and number of the gland elements, either in a circumscribed area or throughout the entire gland. Secondary to, or coincident with this development, there is an increase as well in the *muscular and connective-*

tissue stroma. This gives a microscopic picture which in reality does not vary greatly from the normal.

The gross pathologic changes that occur in the gland, I shall describe by reference to the following twenty-five photographs and drawings which have been taken from the specimens in my collection, and which will be thrown on the screen for their better observation. For purposes of description, authors usually designate specific regions of the gland in which predominant tumor formation takes place. Thus in this description, I may speak of hypertrophy of the lateral lobes of the prostate gland, hypertrophy of the middle lobe, and hypertrophy of the area which lies immediately in front of the urethra. In any given case we may have any one of these occurring singly, combinations of any two, or a process of hypertrophy extending throughout the entire gland. An hypertrophy of the lateral glands is shown in Fig. 2. It will be observed that this gland is generally rounded out and generally increased in size in all its dimensions. Should we consider it in its relationship to the triangular ligament, it is apparent that in the course of development this tumor formation would extend upward and backward, carrying with it the orifice of the bladder, and also that it would project as a tumor in the rectum. In this form of lateral enlargement the hyperplastic process may be uniform throughout the entire substance of both lateral lobes, and affect the urethra only by making of it a perpendicular slit having rigid sides; or a distinct tumor formation may characterize the hypertrophy, and these nodular enlargements may deflect or otherwise seriously interfere with the urethral channel. Any one of these changes will interfere with the expulsive forces of the bladder.

The so-called middle-lobe enlargements are the ones that possess the greatest importance in urinary obstruction, from the fact of their position at the very orifice of the urethra.

The median tumors may be divided into two varieties; first, those in which the middle lobe of the prostate gland is

enlarged and in which the tumor growth so formed develops directly upward and carries with it the orifice of the bladder. Second, those cases in which the tumor is the direct result of an adenomatous development taking place beneath and within the mucosa and the upper portion of the posterior urethra, and which extend upward into the bladder proper to form either small nodules, considerable tumors, or a complete collar around the neck of the bladder. Either one of these varieties of median enlargement will carry the vesicle orifice upward or backward, and thereby elevate it above the lowest level of the bladder. This position of the urethra will make complete evacuation of the urine a mechanical impossibility, and after the completion of voluntary urination there will be left in the bladder a puddle of urine, the size of which will depend upon the extent of elevation of the vesicle orifice. (See Fig. 1.) Fig. 3 is an example of variety 1. Fig. 4 and Fig. 5 illustrate variety 2. In the specimen illustrated in Fig. 5 the origin of the tumor growth which is present at the vesicle orifice has been positively proven to be in the submucosa of the urethra and not in the middle lobe of the prostate gland.

Anterior enlargements of the prostate gland are never described among the pathologic changes and areas of predominance by writers on this subject. Yet it has been my peculiar experience both to encounter a very great number of such lesions in my autopsy material, and on one occasion to meet with serious embarrassment at the time of operation by finding the lesion mainly confined to this region. I wish to make the point, therefore, that hypertrophy of the prostate gland may involve the anterior commissure extensively, when associated with other forms of enlargement, or that it may be the sole situation of advanced and serious enlargement to a degree that will form positive mechanical obstruction to free urination.

Figs. 1, 5 and 6 represent longitudinal sections of some of these cases, and will demonstrate the decided enlargement the tissues anterior to the urethra. That this tissue is an

adenomatous new-tumor growth has been demonstrated by microscopic sections in each of these cases. Cross sections of these cases have demonstrated that the new-tissue growth anterior to the urethra is merely a continuation forward of the lateral lobe, but that hyperplasia has occurred to only a slight or insignificant degree in the purely lateral portions of these lobes. All of these tumors anterior to the urethra contribute largely to mechanical obstruction to the complete evacuation of the bladder. The obstruction has been so great in the case pictured in Fig. 6 that the increased force of bladder contraction has given rise to both sacculation and trabeculation of the bladder.

This very brief reference to gross lesions of the prostate gland will, at least, serve as a starting point upon which to base our future discussion of the questions of diagnosis and treatment.

There are two other features in the strictly local lesion which I believe may be given places of even greater importance than the tumor formation itself.

1. Circulatory disturbance.
2. Septic infection.

By circulatory disturbance I mean chronic passive hyperemia in the abundant prostatic venous plexus, thrombosis of these veins, and the inflammatory edemas that follow "catching cold" and cause acute retention. All of these lessen the resistance of the bladder mucosa to actual invasion. Septic infection of the bladder-contents, consequent upon these circulatory disturbances, is entirely inevitable, and not to be prevented by the most rigorous asepsis. (Fig. 1).

The subjective symptoms of hypertrophy of the prostate are so classical, that they scarcely need delineation. Briefly they are decreased force of stream, dribbling at the end of urination, difficulty in starting the stream, increased frequency of urination especially at night, intermittent micturition, an incontinence of overflow, acute retention, and pain.

The careful physical examination of patients suffering from hypertrophy of prostate gland for the objective symptoms I consider to be an extremely important point from the standpoint of diagnosis. Not so much perhaps for the diagnosis of the presence or absence of hypertrophy as for the correct diagnosis of the exact variety which exists, in view of treatment. Rectal examination gives valuable information regarding the size, shape, consistency, and contour of any enlargement that may be present in the lateral lobes, but it does not give information regarding the middle lobe and the urethra—the two most important points in the diagnosis. Furthermore my specimens demonstrate a fact, which I have since found has been brought out recently by Moullin, that the obstructing collar at the neck of the bladder is often an adenomatous development within and beneath the mucosa at the neck of the bladder, and in no connection with the middle lobe. These important tumors would of course never be felt by rectum. Let me state further, that most fingers feel very little per rectum, because they lack experience. The next investigation is usually made with the soft catheter which determines three points. (1) Lengthening of the urethra; (2) Residual urine; (3) The degree of urethrocystitis. Lengthening of the urethra indicates roughly the amount of enlargement of the middle lobe, while residual urine not only makes the diagnosis positive, but it indicates the degree to which the urethral opening has been elevated, the size of the puddle so formed, and the muscular power of the bladder.

Valuable information will be gained by an examination with a sound or Thompson searcher and by the use of the cystoscope. The sound when combined with rectal examination gives certain information as to the size, position, and contour of tumor-growths, while the cystoscope sometimes gives ocular confirmation to our diagnosis. While cystoscopic examination is scientifically correct and always to be desired, I believe it to be a difficult, a dangerous, and an unsatisfactory procedure in many of these cases.

Fig. 2. Hypertrophy of the Prostate Gland.

Fig. 3. Hypertrophy of Middle Lobe of Prostate Gland. After an attempted Bottini operation. A line connecting A and B represents the low level urethra.

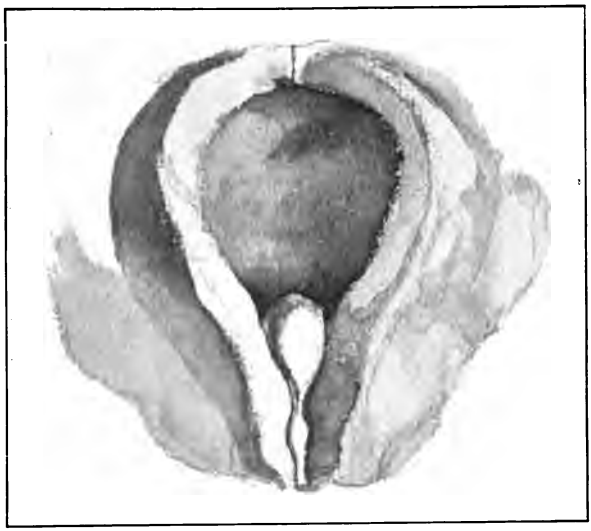


Fig. 4. Median Tumor at Neck of Bladder. Not an enlargement of Middle Lobe of Prostate, but Adenoma under Mucosa.

Fig. 5. Hypertrophy of the Anterior Area. Also adenomatous development at the neck of the bladder.

The necessity for careful examination of the urine in every case of hypertrophy of the prostate for evidences of kidney complications is apparent.

The treatment of hypertrophy of the prostate gland I shall divide into (1) the nonoperative and (2) the operative treatment.

There can be no question as to the fact that the vast

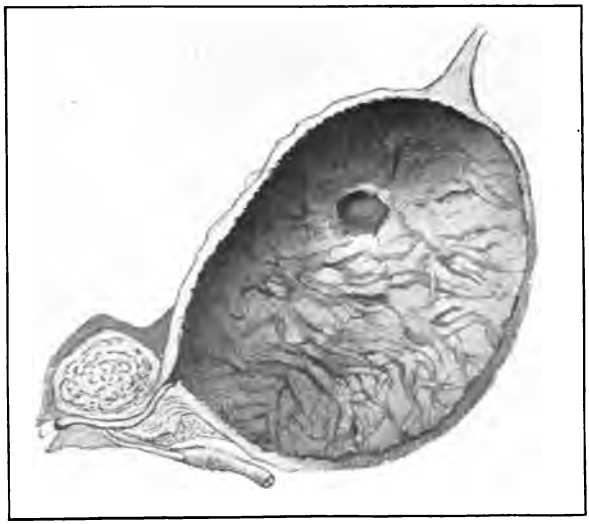


Fig. 6. Hypertrophy of the Anterior Area of the Prostate with resulting sacculation and trabeculation of the bladder.

majority of men suffering from hypertrophy of the prostate gland are best treated, both as regards comfort and the prolongation of life, by the nonoperative method. Judicious and cleanly catheterism when continued with a careful hygienic life may enable such a patient to live in comfort for twenty years. It will be observed, however, that this statement contains many provisos. First, that it be done judiciously; second, that it be done in a cleanly manner; third, that the individual lead a careful hygienic life. The laboring man, the mechanic, the farmer, cannot be relied

upon to do any one of these continuously, nor indeed can the more careful bank president. Furthermore there are three other modifying statements that must be made before continuing. First, there are many men who *never can* become accustomed to catheter life, no matter how careful and painstaking the efforts may be; second, there are others who stand it well for a time and then break down in their resisting power; lastly, it is *impossible* to render the urethra

Fig. 7. Thrombosis of the Prostatic Plexus in Hypertrophy of the Prostate Gland.

surgically aseptic for a single manipulation, to say nothing of maintaining it so for manipulations that must be repeated from one to six times in every twenty-four hours. It therefore follows that while the majority of men may be best treated by the catheter, there is a minority by no means small nor unimportant that demand operation as imperatively as any class of operable surgical disease that I know. Permit me to be dogmatic for brevity's sake in the description of catheter life. The frequency with which the catheter should be used depends upon the *amount* of *residual urine*, and is

independent of the presence or absence of infection. The best rule is once a day (before retiring) when there are three ounces. Twice for six ounces, and once more per day for every additional two ounces. Ten ounces means retention, in other words the withdrawal of all urine by six hourly catheterizations. The choice of catheter must always be the smallest and softest that will enter. A soft rubber catheter, six or seven French scale, is most generally chosen, but the percentage of cases in which a stiffer instrument must be used is large. The Mercier, conde curve, silk catheter is the catheter of the prostatic. Silver catheters must never be used by a patient, exceptionally by the physician. *Sterilization* is best accomplished by boiling as many soft-rubber catheters as the individual will use in the day in an aluminum pocket-case before leaving his home in the morning. One of these is used from the box at each catheterization, and all dirty ones, taken home at night in a towel to be cleansed thoroughly for resterilization. The silk catheters are best sterilized by immersion in 1-1000 mercuric chlorid.

Medication consists entirely in *maintaining* a sterile condition of the urine under the new conditions imposed upon the bladder, or, if the urine is already septic, in restoring an aseptic condition. Urotropin is the drug of choice, since it has been experimentally demonstrated that certain products of its decomposition are excreted from the kidney in solution with the urine, and make of it a positive germicide, and maintain its acidity. This should be given in 7 gr. doses four or five times a day. Under the conditions of a highly acid, scanty urine which irritates, an alkaline mixture of potassium acetate will render the urine copious, hence less concentrated, and lessen its acidity or change it to an alkaline reaction. For the urethrocystitis cystogen, salol, triticum repens, etc., *ad infinitum* may be used with satisfaction, but not with great relief to the patient.

For marked urethrocystitis or acute retention, the treatment should be absolute rest in bed, milk diet, frequent catheterization, irrigation of the bladder with hot boric

acid solution twice a day, hot applications to the pelvis, hot water bottle to the perineum and prostate, hot prolonged rectal irrigation by continuous stream, urotropin, opium, and belladonna suppositories, and trional or morphin for sleep.

A concensus of surgical opinion now limits the radical operative treatment of this condition to the following procedures, named in order of their severity, (1) Bottini's galvanocaustic incision, (2) perineal prostatotomy, and (3) prostatectomy.

The primary principle in any surgical procedure undertaken for the relief of hypertrophy of the prostate gland is the restoration of a *low-level urethra*. The specimens I present are illustrations of this point. Here for instance (Figs. 1 and 3) what is needed is to cut down this barrier of tissue and restore this level. The removal of the prostate gland entire, or the removal of the entire tumor-portions of a hypertrophied prostate gland, is not recommended I believe by the most ardent advocates of prostatectomy—a fact that may be well understood when my specimens are recalled. The uniform procedure is the removal of that portion which is obstructing the free flow of urine, and no more. This usually means removing a pedunculated median lobe, cutting a groove through a sessile or broad enlargement of this lobe, or cutting a fibrous band connecting two hypertrophied lateral lobes.

Bearing these points in mind, let me describe the accepted methods of meeting this indication.

Bottini in 1875 first introduced his method of galvanocaustic incision of the median enlargement. The instrument, which would seem theoretically correct, as modified by Freudenberger of Berlin, I have here.

In an effort to determine its value and applicability to the condition in the face of most conflicting reports concerning results, I have used the instrument on a number of cadavers. My results speak strongly against the use of the instrument, and I believe explain many of the failures that have been reported, and furthermore I think speak for more

accidents and more failures. My first operation was much in the shape of an experience-lesson with the instrument. I turned on the current, waited ten to fifteen seconds, and screwed back the blade as I thought very slowly. I noticed the handle of the instrument moving slightly toward the glans, and turned more slowly, taking perhaps 1-1½ minutes. The bladder was opened, and not even a sear was found on the mucosa. The blade had never been red or white hot. This I explained by an insufficient length of time being allowed before beginning to screw out the blade. The moment that I screwed out a black blade this rested on the mucosa and the screw only pushed the beak of the sheath out into the bladder and this allowed water to run around the blade. The moment that the water came in contact with the blade all hope of heating it to the degree of redness was over. My continued screwing only pushed the beak further and further into the bladder.

In case II I corrected these two errors of speed, and took more time. When I opened the bladder I found to my astonishment this hypertrophy of the prostate, an ideal case for the operation. (Fig. 3.) My knife had again only scorched the mucosa however, and I was disappointed. I concluded that the water was a mistake, and after sponging all the water out, inserted the instrument again, and did the operation under the strict guidance of the eye. Now the blade heated well, and made the usual sputtering and smoke as it was slowly screwed up to 2½ c. m., when it was returned to the sheath. The lateral cut was immediately made in the same manner. I know that the mechanical working of the instrument was perfect in this case, that the beak of the instrument hugged the tumor always, and that the knife was screwed up so slowly that it never required much pulling on the handle to keep it in place. Yet this picture represents the result in this case. A burn has been made ½ inch deep by ¾ long in this tumor. Here is the obstruction that must be overcome. The shaded area at the top is the burned area, the deep black line on upper border of the median tumor is the lateral cut.

Case III was done with air in the bladder instead of water, and the points gained by previous experience well guarded. On returning the knife to the sheath it was found impossible to completely do so. The screw failed to go home by ⅛ to ¼ inch, and the whole instrument seemed to be firmly locked in position at the neck of the bladder. The beak could not be pushed in or pulled out, despite gentle manipulation persisted in for some minutes. I felt that I could burn out the obstruction but did a suprapubic cystotomy in order to study the accident. I found the beak within the bladder, the platinum blade outside, and the wall of the bladder interposed. The blade had burned insufficiently at the very beginning of its excursion, doubtless because of a little urine which had been left in, then had burned freely when once away from fluid. On its return, even though hot, it caught on and burrowed under the cut edge of the bladder. Only by persistent manipulations were we able to extricate the blade with the bladder open. The specimen I show you here. (Fig. 8.) The seminal vessels and vas have been lifted up with their covering fascia, and we are looking down on the trigone. Here you see the slit in the bladder-wall which was made by the cautery blade. Aside from the fact of extreme embarrassment in the course of the operation such an accident has the grave significance of certain extravasation of urine, sepsis, and death. In fact this accident and result has occurred in cases already reported from perforation of both the bladder and the urethra, and death would have occurred in others had not immediate perineal section been made.

Case IV was done again with water when the knife did not burn through the mucosa even though slowly screwed up. I understand that of four such Bottini operations recently done in the Cincinnati Hospital three have given no benefit whatever, and one has been improved. I think that my experience will explain the failures. The blade has never been hot in some, and it has burned an insufficient groove in others.

As objections to the use of the instrument I would enumerate:

1. It has not done the work under the most favorable conditions and under ocular guidance in the case described.

2. The blade has failed to heat sufficiently to burn in three of my cases, and there must always be an uncertainty as to whether we have really done anything or not.

3. It is an operation done in the dark, and is apt to cut far beyond the desired limits, an accident which usually results in death unless promptly recognized and remedied by a cutting operation.

4. Death may result from sepsis even when the bladder or urethra are not opened by accident. The operation always makes a wound and leaves sloughs in a septic cavity with no provision for drainage. These cases generally have infected bladders.

5. Death may result from shock and uremia.

6. Hemorrhage is a constant danger. This usually occurs when the sloughs separate in from seven to twenty days.

7. Absolute retention is not uncommon after the operation.

8. The symptoms of postoperative pain and tenesmus have been simply unendurable in several cases.

9. Cicatrices are certain to contract, and the symptoms recur.

10. Its only applicability is to the median sessile bar, and it cannot control the pedunculated middle lobe, lateral enlargements, nor anterior enlargements.

11. Its mortality is rather high for a procedure having so much uncertainty.

Perineal prostatotomy is nothing more than an external urethrotomy in which the cut is carried up through the prostate gland, a wide opening made into the bladder, and a large drainage-tube inserted. This operation is not much done at present because of the tendency to a permanent fistula, and because it deals inadequately with the difficulty,

but may be advised in those cases that have kidneys that are badly damaged and are *in extremis*.

Prostatectomy by either the perineal or the suprapubic route is still the surgical procedure of choice. It is certainly a more surgical procedure to deal accurately by sight and by touch with the varieties of tumor-mass that may present at the time of operation and with the resulting hemorrhage, and furthermore to be able to follow this procedure by thorough drainage and irrigation of the septic cavity.

In addition to the primary requirement of an operation for this condition, namely the restoration of the low-level urethra, I believe that the drainage of the bladder and the stretching of the posterior urethra also play an important part in the permanent results. It is apparent that prostatectomy alone accomplishes these three conditions. The choice of route is entirely a mechanical question of accessibility and experience. There are many able advocates of each route, but I am convinced that suprapubic prostatectomy must be considered the operation of choice because:

(1) The obstructing tumor is always within reach. While it has been demonstrated that the middle lobe is beyond reach by the perineal route in 1-3 of the cases.

(2) The excision may be more accurately done from the technical and anatomic point of view.

(3) The mortality is not sufficiently greater by this route to outweigh the disadvantages of inaccesibility by the perineal route.

(4) Drainage is as efficient as by the perineal route.

The mortality for any operation done for the relief of this condition is certain to be high just as long as these cases continue to come to us for surgical operation in the semi-moribund condition. I have stated that only a small proportion of cases suffering from prostatic hypertrophy should be operated on, but this few must be seen early and before the kidneys have become infected. I purposely reserve this statement for a closing remark in order that the plea may carry greater weight and obtain more lasting memory.

My conclusions to the paper are:

(1) The subject of prostatic hypertrophy is one of vast importance, needing special study for the proper treatment of each class of cases.

(2) While the tumor formation is most common in the lateral lobes and most productive of obstruction in the middle lobe, the anterior area of the prostate is frequently alone the seat of tumor-growth.

(3) Rectal examination may not be relied upon for a diagnosis of median-lobe enlargements.

(4) The vast majority of prostatics are best treated by aseptic catheterism. Repeated attacks of retention and sepsis however, inability to follow catheter life, and very large size of obstructing tumor demand treatment by the operative method.

(5) The Bottini operation has failed to accomplish the desired results in the cases experimented upon, and appeals to me as a haphazard, dangerous, and unsurgical procedure.

(6) Suprapubic prostatectomy is the operation of choice.

(7) Cases must be sent for operation at an early date.

DISCUSSION

Dr L. B. Tuckerman, Cleveland: I have had no experience with the Bottini operation, and listening as I have with a great deal of interest to the paper I am somewhat glad that I have not had any. The experimental researches of the doctor have somewhat confirmed what seemed to me to be the *a priori* objections to it. The operation is in the dark, you never know just what you are cutting, and in fact you do not know whether or not you are cutting at all. It seems to me he has demonstrated all these facts in his paper.

But I arise to mention one point—every time perineal section is mentioned the danger of permanent fistula is emphasized. It is a great danger, and it is especially great when the very common sin of omission is committed. Very seldom; it is, perhaps, hardly fair to say very seldom; but at any rate every now and then, when the perineal section is made the surgeon forgets that there may be a stricture of the anterior urethra, and if there be the least obstruction in

the anterior urethra to the passage of urine the perineal section will, perhaps, never heal, consequently it has been my practice for a number of years when I do this operation to open the anterior urethra to the full Otis measurement, and I have very seldom had any trouble about the closure of the fistula.

Dr Jos. Ransohoff, Cincinnati: I would not have taken the floor only I think that something ought to be said in behalf of the Bottini operation. It has been said that the operation is one which is performed completely in the dark. That is not exactly the case. Wherever possible, before making this operation we should make use of the cystoscope for examination purposes, and we ought, after that examination, to be enabled to do just what we want to do with the Bottini instrument. I am fully aware that in a very large proportion of the cases cystoscopic examination is not possible, but on the other hand there is a large number of cases in which it is possible, and everyone who attempts to make this operation ought to have made a cystoscopic examination wherever possible.

Now I have performed this Bottini operation six or seven times, and I can say in all of the cases I have had most excellent results. That is more than I can say for any other form of operation, and I have tried all of the operations for this trouble.

The operation was first devised in 1875—and it came from Italy. Had it come primarily from Germany or England I have no doubt that it would have been adopted more extensively than it has been. I know of no operation which has had a harder fight for maintaining itself than this operation. It really seems to me (notwithstanding the admirable demonstration we have had) to be the ideal operation for the average (not the very large) but the average case of prostatic enlargement as we get it in the beginning. Now we must differentiate between enlargements of the prostate gland. With very large enlargements, with enormous hypertrophy of the middle lobe, with large pouching back of the enlargement —those will not be cured by the Bottini operation, and yet in cases of this kind I have seen temporary results which were fully equal to the results that we get from median section. Median section with drainage is not a curative procedure, we all know the operation has to be done again

and again, if the patient is fortunate enough to survive the operation.

There is nothing more plaintive in the literature than the last article of Bottini, published perhaps two years ago, in which he called attention to the fact that because this operation came from the south side of the Alps it was not accepted as it would have been had it originated with some Englishman or American. He also called attention to the fact that long before Lister published his observations on carbolic acid, he had reported his observations with this drug on six hundred cases in Italy, but this report happened to come from Italy—and there is somewhat of truth in what he says.

Now in regard to the operation—I have not had the trouble with the living that the essayist has had with the dead subject in the use of the Bottini instrument. I wonder whether the doctor has the right sort of a battery, which is an important element in the success of the operation. Now I am ready to guarantee with the proper battery, and after making a thorough test of the instruments, that he would not have the difficulties with the cutting of the prostate gland that he has encountered in the cadaver. I have had none of the difficulties. In one of my cases—I do not know how to account for it—I had extravasation of urine, possibly I got the instrument into too close contact with the triangular ligament and burned a hole in it. One advantage of the Bottini operation is that the patient passes his urine voluntarily after it. I have tried it and I know I shall try the operation again.

Dr Arch. I. Carson, Cincinnati: I should like to say a word concerning the experiments which Dr Whitacre made, covering a period of five months under my service at the Cincinnati Hospital. As he stated, these experiments were performed upon dead subjects, and I believe that I had the opportunity of seeing all of those specimens from which he has shown upon the screen. The instruments used by him differed not in the least from those ordinarily used, except that instead of a battery the Hospital current was used. The instrument was tried, not only before putting it into the bladder, but also afterward. There was one instance in which the knife failed to heat; we tried it in a beaker of water and failed to get any effect in the knife from the current. At another time during our experiments the instrument continued to work for a few minutes and then failed

us. We stopped our work, started up again only to find that the attachment to the hospital current had burned out in the midst of the operation. The doctor neglected to mention this in his paper. I think almost anyone who saw the experiments carried on by the doctor would not be so favorably impressed with the Bottini operation. However, I speak only from the experimental side of the question.

Dr Bryan, Georgetown, Ky.: I have listened to the paper and the discussion with a great deal of interest. It appears to me that this operation could only find a field of usefulness in the hands of men who were especially prepared to do electrolysis work, the general practician not being equipped for this kind of work.

Dr H. J. Whitacre, Cincinnati: Dr Ransohoff has spoken about making a cystoscopic examination in these cases. Owing to the time-limit on papers it was impossible for me to read that portion of my paper in which I dwelt upon the impossibility of making a cystoscopic examination in many of these cases. The closure of the urethra by the new growth is often such that it is very difficult to introduce the cystoscope; it is very painful; it produces a great deal of shock; and it is apt to produce sepsis. Furthermore, when the instrument is introduced you cannot look back on the portion which it is the most important to see. Of these objections sepsis following the manipulation is perhaps the most important. There are two or three cases of death reported from toxemia due to cystoscopic examination alone. I consider the cystoscopic examination as scientifically desirable in every case, but it is possible to make it in but few instances.

Concerning the experiments to which I referred in my paper, I wish to say that I am quite sure that I had familiarized myself with the instrument before introducing it, and I never introduced it without first testing it thoroughly to see that it was white hot and would burn flesh. The instrument worked before it was introduced, and it ought to have worked after it was in the bladder. The current used was obtained from the street circuit, and was passed through a transformer. The instrument with which my experiments were performed was the Freudenberger modification of the Bottini instrument. I report these experiments because I have seen immediately after the operation just what has been done.

I intended to mention the point which Dr Carson has spoken of, as one of importance, but neglected it. Another point which I neglected to speak of was that in the operation in which I cut the bladder, the case was a normal one; but in the same way a fold of the bladder may come in contact with the blade in a case of hypertrophy of the prostate and be cut, or the blade may cut too deeply into a very small median enlargement, or in those cases in which the median tumor is pedunculated the blade may slip to one side of the tumor and cut at the base of the tumor—hence through the wall of the bladder.

It is the early cases, if any, that should be operated upon by the Bottini operation, but early cases should not be operated on at all as they get along perfectly well with the catheter. I have cases on whom I would not operate on by any means. When the gland gets large enough to be beyond the catheter treatment, the Bottini operation will not do the work.

In regard to prostatectomy—the last gentleman on the floor advocated the perineal route. In performing this operation it is necessary to insert the finger until it comes in contact with and can control the middle lobe of the prostate, but when it is found at the time of the operation that the finger is not long enough to reach it, the situation becomes one of the most embarrassing in surgery. There is no choice left—a suprapubic cystotomy must immediately be done. Watson has thoroughly demonstrated that it is not possible to reach the median enlargement in one-third of the cases; consequently the operation is of necessity confined to individuals with an extremely long finger. An operation which at the outset offers a chance of accessibility in only two-thirds of the cases it seems to me is not the operation of choice.

The Importance of Early Recognition of Abdominal Infections

BY W. D. HAMILTON, M. D., COLUMBUS

A large part of the surgeon's work today has to do with conditions which twenty years ago were either pathologically unknown, or were inoperable. These advances bring greater

responsibility to the physician of today. He should be cognizant of those conditions which may call for surgery.

Abdominal physical diagnosis is added to his former duties. The general practician is not expected to be an expert in the recognition of these pathologic conditions. Lawson Tait said to the members of the Surgical Section of the British Medical Association at Leeds in Yorkshire some years ago that 20% of abdominal diagnoses were wrong, including his own. This certainly suggests an attitude of extreme modesty on the part of those who do abdominal surgery. The fact remains, however, that early thoughtful searching examination of the abdomen should be made when called to a case having such possibilities. An inflamed appendix, a perforating gastric or intestinal ulcer, a leaking gallbladder, extravasation about the kidney, ureter or bile duct, a subdiaphragmatic abscess, a suppurating extrauterine pregnancy, are some of the conditions that may demand his attention. On the other hand a pelvic abscess, a localized tubercular focus, any of those traumatisms to the abdominal contents, or anything which may cause peritonitis, thereby jeopardizing the patient's life, could properly be considered in this category.

A retrospect of the last few years will, in the writer's mind, bring out clearly this fact with reference to abdominal infections which required operative interference. When the patient has died after operation it has generally been apparent that an earlier use of the knife would have offered a better chance of recovery. It would be unjust to assume that the attending physician is always to blame, and the writer accepts his share of the censure; occasionally a surgical consultation or an operation promptly proposed has been declined by the patient or the relatives.

It is not the intention of the writer to leave the inference that every patient should at once be cut who has an intra-abdominal infection. The idea to be conveyed is this: that the history of the patient, palpitation, percussion, digital examination, urinanalysis, and, if available, a blood exami-

nation, in fact all those means of investigation which could be employed be *used early*. A prompt diagnosis is half the battle in these cases. How simple the management of a case of appendicitis, that is from 12 to 24 hours old, can often be made by operation. When called to a case in which there is ground for the suspicion of an intraabdominal infection the question to be raised is this: Is it medical or surgical? If the latter, accept or dismiss the idea of operative intervention at the earliest time practicable. It is the object of this paper to minimize the number of those forlorn cases that too often come to the surgeon in which, by delay, the patient has been irreparably overwhelmed by bacterial invasion of the abdomen. In such cases too often operation cannot be done. If it be tried, it will in all probability simply convert an operation into an autopsy. In other words, as has been said by some writer, "the resources of surgery are not often successful when practiced on the dying." The writer believes that in doubtful cases there is less risk in an ably-conducted exploration than in delay and fruitless speculation.

Within the past year the writer has been told by a general practician from southern Ohio that the last case (one of suppurating appendicitis in a stout man), was the twentieth case of appendiceal infection which he or his partner had brought under operative treatment; and that they had all terminated favorably. This is a commentary on what *prompt diagnosis* on the part of the attending physician may accomplish in the relief of this condition.

The proper attitude to abdominal infections may be summarized in the words of the clever Irishman, Sir Boyle Roche, that "the best way to avoid danger is to meet it plump!"

House-to-House Operating

BY EDMUND C. BRUSH, A. M., M. D., ZANESVILLE

This paper is not written as an argument for or against home operating, but simply as a presentation of the subject. Many physicians do not have hospital affiliations or facilities. Men so situated must either operate in the homes of their patients or send them to a hospital, losing both patient and fee. Then again, men who have hospital facilities sometimes have patients who decline to leave their homes, and decide to be operated on there. What is here said does not apply to emergency cases, when surgical work is demanded at once, and when the patient's environment is for the time being a secondary consideration. Neither do I refer to those cases in which any attempt to move them would increase the danger to life. Have there not been cases when moving, for the sake of getting the patient to a hospital, has contributed to a fatal issue? On the other hand have not patients made their chances more desperate by declining hospital accommodations? Such cases demand the unbiased judgment of a skilled physician, whose decision is not influenced by public, or private, hospital attachments, but by the welfare of the patient only.

It is not deemed expedient to expatiate on the comforts and facilities of a well-appointed hospital operating-room. Neither do I care to go over the advantages or disadvantages of a private house for operative work. Assuming that surgical work is to be done in a private house, the operator must endeavor to fit up the room set aside for the operation, so that nothing in connection with it can interfere with the recovery of the patient. This involves much care, work, and attention to details. An operation should not be done in a house where there has been recently a case of contagious disease. After selecting the best room in the house for the purposes needed, always keeping in mind the facilities for lighting, ventilating and controlling the temperature, a competent nurse

takes charge of the patient and room, two or three days before the operation. The nurse is to superintend the preparation of the room and of the patient.

The room is to be dismantled. Curtains, carpets and furniture removed. The woodwork and floor are now ready for the scrubbing-brush and soap. After these have been thoroughly used they should be followed by a solution of corrosive sublimate (1 in 2000). The walls should be cleaned with bread or a cloth. The furniture needed for an operation is an operating table, improvised or otherwise, one small and two medium-sized tables, a wash-stand, and two or three plain chairs. All of these should be well scrubbed before being taken into the room, and after they are in the room they should be rinsed off with corrosive-sublimate solution. The nurse may sterilize the sheets, towels, bandages, dressings, etc., in an oven, but the most convenient thing is a medium-sized Rochester sterilizer, with which everything, including instruments, may be sterilized without trouble. A comfort is spread on the operating-table and over it a blanket with rubber and sheet on top. The covers consist of a sheet and enough blankets, with a medium-sized pillow. Underneath this table is a tub or buckets to receive whatever may be dispensed with.

On one of the tables is a wash-boiler of sterilized water with dipper or cup; the solutions for the hands in large-sized milk-crocks or porcelain-lined cooking utensils. These will number according to the fancy of the surgeon and the character of the operation. A common outlay is, one vessel with potassium-permanganate solution (2 oz. to the quart of water), one with saturated solution of oxalic acid (3 oz. to the quart of water), one with corrosive-sublimate solution (1 to 2000), and one of plain sterile water. On the same table with these are a dozen or more sterile towels. Also a large fruit-jar filled with sterile normal salt-solution or, better still, two jars, one hot and one cold. The heat can then be equalized when needed. An apparatus for using the normal salt-solution, a pitcher of saturated

boric-acid solution, and another of corrosive-sublimate solution.

On another table are the instruments spread out on sterile towels or in a carbolized solution (1 in 40) as the operator may prefer, the gauzes, bandages, dressings and sponges suitable for the operation, sutures, and the other things to be used in connection with the operation itself. For general surgery a very good sponge is made by sewing a bunch of absorbent cotton in a piece of gauze. The size and shape can be regulated to suit the fancy of the operator. These of course, like everything else, have been in the sterilizer. For many purposes I find it convenient to buy the plain gauze. It can be made up into bandages, sponges and dressings by a nurse and then sterilized when needed.

On the washstand are basins, green soap, or some other kind, hand-brush, etc., for cleansing the hands. If the room happens to have a stationary washstand so much the better. The small table for the anesthetist is supplied with the anesthetic and suitable inhaler, tongue-holder, hypodermic syringe loaded with strychnin, nitrate-of-amyl pearls, speculum for dilating the *sphincter ani*, and an electric battery.

It is not hard to maintain the temperature of the room at about 80°, but it is not always an easy matter to maintain that temperature and have fresh air also. The old-fashioned fireplace is a great ventilator. If the room is heated by a stove it is often a difficult matter to arrange for good ventilation and an even heat. If the outdoor temperature is above that desired in the room, the problem presents a different phase. Excluding the heat rays, electric or other fans, sheets rinsed out in ice-water and then hung about the room, tubs of ice in the room, etc., may be resorted to.

The character of the operation influences in a general way the preparation of the patient. First of all there ould be a careful examination of the heart, lungs and

urine. The bowels should be empty. A physic given four days before the operation, another the day before, and an enema on the morning of the operation will be effectual. If the patient is debilitated, a course of tonics covering a period of a week or two will be beneficial, provided time is no object. A daily bath with rubbing is a good adjunct to the tonics.

The night before the operation there should be given a general bath, and the patient should be dressed in a sterilized gown. After shaving, if needed, the field of operation should be enveloped in a green-soap poultice, a medicated gauze pad, or whatever the operator prefers. These dressings are removed under direction of the surgeon, and the field of operation further prepared as he wishes.

The breakfast on the morning of the operation should consist of a little clear soup, a glass of milk, or a little clear strong coffee. If the patient is in good physical condition, it is often well to allow nothing to be taken into the stomach.

After the operation the patient is to be put into a clean, warm bed and surrounded with clean hot-water bottles as many as may be needed. Placing the patient between blankets, instead of between sheets, aids in keeping up the bodily warmth and in combating shock. If the room used for the operation is large enough, the patient's bed may be made in it, otherwise an adjoining room should be prepared. There is an advantage in keeping the patient in the operating-room, so far as danger from sepsis is concerned.

The gowns for the operator and his assistants are sent to the house, and sterilized with the other materials. If the Trendelenburg posture is desired and the table in use not constructed for it, the position may be obtained by slipping a chair, tipped forward on itself, under the patient. A simple and convenient device for obtaining this position can be made by taking two boards, each one inch thick and twelve or fourteen inches wide, one 32 inches and the other

16 inches long. Fasten the boards together end to end with a pair of hinges. Put this board next to the table with the hinge-joint under the knees and the long end under the body. By raising the joint under the knees the Trendelenburg position will be obtained. Two side-straps of leather or iron fitting over nails projecting from the edges of the boards will hold it, or a box or stool can be used for the same purpose. Appliances for obtaining this position can be obtained from the instrument-maker also.

As a matter of convenience I have a portable operating table, a Rochester sterilizer, an outfit of porcelain bowls, and instrument trays. After sending these to a house the nurse's work is greatly simplified.

DISCUSSION

Dr Edwin Ricketts, Cincinnati: This is certainly a very important subject, especially when we take into consideration the fact that nearly two-thirds of the operations performed in this country are done in the homes of the people. There is one thing very certain in regard to the performance of an abdominal or a gynecologic operation, and that is that it can be done in the patient's home and be done successfully. So far as the preparation of the patient is concerned, I think that more attention should be paid to the manner of operating than to getting the patient ready. The Doctor has suggested the use of the bichlorid solution, and the transportation of a table similar to the one which he described to the patient's house. I will say that he can do away with this latter, for in every house you will find a kitchen-table, and that table shoved apart and one board put across it will make as good an operating-table as any man can ask for. The time has come when water is not used so abundantly as it was formerly. Enormous tumors, both fibroid and ovarian, are removed without a drop of water coming into contact with the field of operation; appendices are ligated, and cut away; and even pus-cavities, as the result of the breaking down of the appendix, are now mopped out and no water used. In a great many of the major operations this is more simple to do, and better, than if washed out with abundant water, as formerly. As to the operating for removal of ovarian tumors, I will say that I recently operated for an ovarian tumor with a

twisted pedicle. The tumor weighed twenty-five pounds, and there was infection. The temperature was 103½°, and her pulse 115. Yet the tumor was removed through a small incision, the tumor was tapped, the adhesions broken up, and not a drop of water was used in this operation. I simply mopped out the abdomen. Her temperature went down to 99° and her pulse to 90 on the evening following the operation. I think, Mr President and gentlemen, the tendency of the time is to lay too much stress upon the fuss and feathers of operative surgery. There is something which comes from the home which must not be overlooked in connection with the patient. While I operate in different hospitals, yet I take my nurse and do any operation in the line of abdominal and gynecologic surgery, and do it at the patient's home and get just as good results as I could possibly get in any hospital. It is fortunate and true that the doing of successful surgery is not limited to hospitals.

Dr S. S. Halderman, Portsmouth: While endorsing all the essayist has said, I wish to ask if after all it is not of the greatest necessity for the surgeon to always and at all times keep himself as cleanly as possible? Then also the care and preparation of his instruments. I have had a large experience in surgery among railroad and mill employees, and have made all the amputations except amputating at the hip-joint, doing the work under the most unfavorable circumstances and surroundings, cleansing only the part to be operated upon by careful scrubbing and then shaving and bathing again, and the result would be all anyone could desire, notwithstanding the patient's home surroundings were many times of the worst possible kind.

Dr Wm. H. Humiston, Cleveland: The subject which the essayist has presented is certainly a very important one, and every word which he has spoken can be heartily endorsed. I think however that there are a great many details which can be done away with and yet secure good results, a normal convalescence without any complications. However, as the last speaker has said, I think it depends upon the surgeon himself, and he can go into a log-cabin or a shanty and operate if he have the proper preparation, and by that I mean sterilized towels, sheets, operating instruments, etc., also the necessary chemicals to sterilize his hands, as well as the field of operation. I operate in the country a good deal, but if you should ask me if I would

prefer to go to the country to operate rather than take the case to a hospital, I would say take all cases whenever possible to a hospital, as your success is only one-third obtained when the operation is finished. In the hospital the surgeon has his case under his immediate supervision, and the contact of the operator with his patient does much towards the success of his work, especially after the first week or ten days. It is the one case in the country which causes me more trouble than twenty cases which I have at home in the hospital, because of the fact that such cases are left in the hands of a competent practician but one who is not up in the technic of serious abdominal operations. There are slight matters which come up which alarm him, and then again symptoms arise which are neglected until it is too late, and hence there is a great deal of anxiety caused the surgeon when he operates in the country and has to leave the case in the hands of another man. Hence I prefer to have the direct care of them. There are great advantages in the hospital, and I think the patient who is operated upon at home when he could just as well go to the hospital, is making a great mistake. The cares of the household, annoyances in the kitchen, the cook becomes obstreperous, she comes rushing into the sick-room and says she will not stay where that high-toned nurse is, and you all know nurses will occasionally stir up a whole household in that way. All these and many more annoyances are liable to be incident to operating in the home. I know that I have had cases jeopardized by the actions of the nurse who was more officious outside the sick-room than she should be. If the patient be a mother, it is almost impossible to keep the children out of her room. Considering all these circumstances (unless it is an emergency case which cannot be well moved) I think the chances of the patient are much better in the hospital than they are at home.

Dr John A. Thompson, Cincinnati: Early in the past winter I was called upon to make a mastoid operation on a very delicate child. When I suggested the removal of the child to the hospital I was at once met with the usual objections. "The child has never been away from home. She won't stay there. We cannot have it. We won't permit it at all." I left to make preparations for the operation which was to be done in the home the next day. The father of the child was a carriage manufacturer, and on the

morning of the day before the operation he telephoned to me, and this was what he said: "Doctor, we have come to the conclusion that it is asking too much of you to operate in the house. It would be like somebody living five miles out in the country telephoning us to come out and fix a buggy. Of course we might be able to do it in the country, but we could do the work much better in our shop where all of our tools are at hand. We have come to the conclusion that you can take much better care of our child in a place where all of your tools are ready for the work. She will be sent down today."

I think the father came to a very sensible conclusion.

Dr H. F. Lorimer, Jamestown: I do not care to take issue with a man like Dr Humiston, but I cannot agree with him on one thing which he has said. I think if the country physician, in whose care the surgeon leaves a case after operating, is competent to make a diagnosis, he certainly ought to be prepared for the after-treatment. Another thing, the environment does not want to be lost sight of. The blood-count, pulse-rate, temperature, etc., count for nothing compared with the matter of surroundings of the patient. It is perfectly natural that country people should want to be associated with their country friends. Now that does not mean that the cook, the relatives, or the preacher, are running in and out of the room at liberty; but it means that patient is at home, and I know, gentlemen, that that means everything. In the first place it means the confidence the patient has in her own physician. In the second place it means that if any fatal issue takes place they are among their friends. Now country people are not like city people, and it is hard to get them to the point of going to a hospital.

There is another point which Dr Brush has not brought out, and that is that operations done in the country have a great educational influence among the people. They will learn to appreciate the value of cleanliness, antisepsis, etc., and many other things in sickness. The operation is not done for the patient alone, but for the education of all the people in the community.

As far as criticism in regard to the preparation of the patient and operating-room is concerned, I think every bit that the Doctor has outlined in his paper is possible, and if any surgeon were to operate for me in the country I should want to have the room and patient in just such shape as he

described it, and it does not take many hours to accomplish this. I am not in the least depreciating hospital work. I am only saying that we are obliged to have operative work done in the country, as it is impossible to railroad every patient into a hospital, and there is not the slightest doubt but that operations are, and can be, successfully performed in the homes of country people.

Dr Robert Carothers, Cincinnati: Those of us who do operations in well-equipped hospitals in the cities, and equally as much operating in the houses of the cities and country, probably have the opportunity of observing the results obtained under both conditions. I must confess that some of my worst cases have been those which have been operated upon in the best equipped hospitals, and that some of my very best results have been obtained in the homes of poor people. On the other hand I have had just the opposite results. I really think that while the hospital has done an enormous amount of good for the individual operated upon, it has done a still greater amount of good to the surgeon along the line of comfort and peace of mind, because I do not think that any of you who do all classes of operating, cannot but feel much more comfortable with a patient in a hospital, where there is a trained interne and nurses, and everything needful at hand for the treatment of the case. Therefore I cannot but feel that the hospital is the best place to do operating, but to say that operations cannot be done in houses, and all kinds of houses, the poorest as well as the most elaborately furnished, is certainly a mistake, because we each and everyone of us know that a much greater proportion of the operations done upon the people are performed in the homes.

I desire to heartily endorse every word which the essayist has said in regard to preparation. That is the keynote. As an illustration I wish to recite a case occurring in my practice. When I did more general practice than I do now, and also more obstetric work, I had been engaged to take care of a woman in confinement. I had made a little miscalculation, and she also had made a little miscalculation as to the time of her confinement, for which I think we were both excusable. One morning I saw a case of erysipelas at eight o'clock and at 9 o'clock of the same morning I was called to attend the woman in confinement. Coming out of a house where there was a case of

erysipelas in its active stage, and being called to a case of obstetrics—rather a bad combination. I knew, as the confinement was the first the woman had had, that it would not probably be a quick delivery, and I sent word that I would be at the house in an hour. During that hour I prepared for that case, and I never had a case of obstetrics which did better. There was absolutely no rise of temperature at any time, and not the least sign of pus, sepsis or anything else. The preparation in that case was what prevented untoward results. I would do it again, although I would not advise that sort of work. I once amputated a foot in the same room with a case of smallpox, and yet by the greatest of care at the time of operation and in the after-treatment of the case, which was continued in the same room with the smallpox patient, I was able to get a very satisfactory result, and union by first intention. It was an accident case, and I had no alternative as for time and place to operate.

Another point, and that is the dressings. I think this is a matter which is not dwelt upon enough. I have seen men—not many—I did it myself—use the greatest care in the preparation of the patient and instruments, everything being most scrupulously prepared, and in three days after the operation, when it became necessary to change the dressings very little care was taken as to antisepsis. I have seen cases which did beautifully for three, four, five, or six days after the operation, and when the dressings were changed then came the trouble.

Dr E. C. Brush, Zanesville, closing: Mr President and Gentlemen:—As stated in the beginning of my paper, the essay was not written as an argument either for or against home or hospital operating. Neither did I write it because I have not hospital facilities, but as the result of experiences in my own locality. I give the details of the preparation of the room to my nurse, and she makes everything ready. Before I completed this paper, a short while before I came down here, I called a nurse who has fixed rooms for me a number of times, and I said to her: "Sit down and write out just what you do when you are sent to fix up a room or a house preparatory to doing an abdominal operation." And she did so, and they are as I have given them to you. A physician will come to me from a neighboring town and tell me that the patient must be operated upon, and that the relatives would like to keep

the girl at home, and that the family physician will take care of her after the operation. In such cases I tell them that they must let me have the choice of a nurse and that she must be implicitly obeyed, and then I go ahead, if the house is a suitable one.

I appreciate very much what the gentlemen have said, and each one has made some good points. There was one point brought up on which I would like to say a word, and that is in reference to the control of the case after the operation. My experience with the men who practice in the towns surrounding me is that they are likely to watch the case and take better care of it than I would. Their whole interest is centered in that case, and if there is any man on earth who deserves a crown when he gets into the next world it is the Doctor who practices in the country.

Traumatic Stricture of the Esophagus

BY FRANK E. BUNTS, M. D., CLEVELAND

Professor of Principles of Surgery and Clinical Surgery, Medical Department of Western Reserve University

Since the introduction of retrograde dilation of the esophagus by Loreta and Von Bergman[1] in 1883, it would seem that the ingenuity of our surgeons has been directed toward improvements and modifications of this radical procedure, and that having discovered that the operation was a feasible one, though not unattended by danger to life and sometimes followed by the maintenance of permanent gastric fistulas, as in two out of twenty-one cases collected and reported by Franks,[2] they seem somewhat disinclined to return to the more tedious though safer method of gradual dilation.

F. Erlich[3] reports a case of esophageal stricture following scarlet fever in a child five years old, in which unsuccessful attempts at retrograde dilation after the performance of gastrostomy was followed by successful

1. Dennis System of Surgery.
2. *Annals of Surgery*, 1894.
3. *Berliner klinische Wochenschrift*, Oct. 17, 1898.

dilation by means of spiral bougies and laminaria-tents and graded bougies. H. Zeehuisen[1] reports two cases of stricture of the esophagus caused by swallowing lye. He followed Kongis method using silver balls attached to strings. The patient would swallow the ball at night as far as it would go. In the morning the ball would be found in the stomach and pulled out. Each night a larger ball was used, until finally a large-sized tube could be passed into the stomach. A. Summa[2] reports a case of stenosis of the esophagus in which a child two years old drank lye, and when fourteen years old had great difficulty in swallowing. Some relief was obtained on dilation. When sixteen years of age, the patient had pain in the epigastrium and coffee-ground vomiting. Gastroenterostomy was performed, and the patient died. There was a circular scar an inch below the pharynx and a second stricture which ran all the way from the trachea to the cardia. There were also an old gastric ulcer and an ulcer of the duodenum. The author considers the ulcers due to the ingestion of the lye.

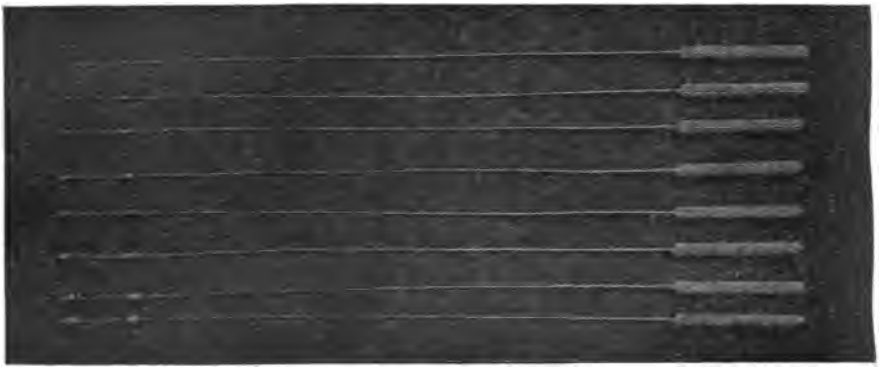
The treatment of esophageal strictures by electrolysis is sometimes successful, and one case of forty years' standing is reported by W. S. Watson[3] as having been cured. The uncertainties of this method together with the dangers attending its employment will probably prevent its ever being generally adopted.

F. W. Samuel[4] says that the treatment by mechanical dilation is applicable only to such cases as can easily swallow semisolid food which imposes upon the patient an almost life-long task, and that gastrostomy with retrograde dilation by the Kraske or Abbe method is the best treatment up to the present. That this statement is entirely too sweeping I believe a reference to the cases which I have

1. *Centralblatt fuer innere Medicine*, Jan. 15, 1898.
2. *Deutsch. Archiv. fuer klin. Med.*, Dec. 22, 1897.
3. *Journal of American Medical Association*, Vol. XXV.
4. *Mathews Quarterly Journal*, Vol. IV, 1897.

to report will show; and, if mechanical dilation be only applicable to those cases in which semisolid food can be swallowed, it is because suitable bougies have not been obtainable.

Stricture of the esophagus is one of the most frequent pathologic lesions of this organ. Inasmuch as the tendency of such a stricture, if left alone, is progressively to contract, just as we find in strictures elsewhere, a method for its relief becomes a most important problem for the surgeon to solve. The comfort and welfare, even the life



of the patient, depend upon the recognition of the lesion and its proper treatment.

The congenital form of stricture is comparatively rare, and while in its simplest form it is amenable to treatment by dilation, yet in that form in which the tube is completely occluded there is practically no cure, notwithstanding the various ingenious operations which have thus far been resorted to. Spasmodic stricture is essentially of nervous origin and is most common in women, and its true character is easily made out, if necessary, by an examination under an anesthetic. Those strictures resulting from the presence of cancerous, tubercular, or syphilitic growths, or from pressure of tumors and other pathologic conditions outside the esophagus must be diagnosed by inspection,

microscopic examination, bougies, and by the history of the case. Their final treatment is nearly always operative.

I wish to speak only of traumatic cicatricial strictures. These strictures are caused by wounds of various kinds, and more frequently by the swallowing of strong acids or alkalis. In those cases which have been neglected the progress is usually very rapid in the severer forms. The inability to swallow solid foods is soon followed by an equal inability to swallow the softer foods, such as gruels, and in a short time even water and milk will, with the greatest difficulty, find their way through the tightening grasp of the cicatrix. Up to this time the patient has managed by repeated and deliberate efforts at swallowing food and drinks to keep up a fair degree of nourishment, and may have been able even to attend to his ordinary occupation. Naturally, as his power to swallow even fluids becomes more and more diminished, his strength gradually fails, regurgitation of everything swallowed occurs, and the picture is soon that of one who is dying of starvation and thirst. Emaciation is rapidly progressive; and, unless surgical aid is obtained, death from exhaustion soon ensues.

The diagnosis of these cases rests first with the history. Ordinarily this is easily obtained, but when the patient is a small child it is frequently difficult to find out just what has been swallowed. Almost every household uses lye for cleaning out sinks and drains, and a small amount of it left in a cup may be swallowed by mistake. Next must be taken into consideration the symptoms: deglutition becomes progressively impaired until all or part of the food is vomited, and this persistent inability to swallow or retain food of any kind should call attention at once to the possibility of a stricture. At first the food in the early stages of obstruction comes up undecomposed, later as the esophagus becomes more tolerant the food may be retained until decomposition takes place.

Those strictures resulting from ulcerative processes

are liable to be found in the lower third of the esophagus quite as frequently or even more frequently than in the upper third; while those due to mechanical injury, the most frequent of which is the swallowing of lye, are most liable to be found in the upper third, though such a large quantity may be swallowed as to allow enough to trickle farther down and attack almost any part of the tube. At first the pain is sufficient to account for the temporary dysphagia, but later on when the pain has disappeared and yet the inability to swallow solid food continues, the true nature of the cause may possibly suggest itself to the patient or his friends. The convincing test is, of course, the esophageal bougie, and if the other form of stricture can be excluded and the bougie meets with obstruction in any part of its course, a cicatricial stricture may be safely diagnosed. The prognosis depends upon the extent of injury to the mucous membrane and consequently the degree and rapidity of contraction. The rapidly-contracting strictures are the ones most difficult to dilate and keep dilated. The degree of stricture which permits the taking of liquids and semisolid foods is perfectly compatible with life and active business pursuits, and may never call for interference on the part of the surgeon, but the greatest number of cases pursue a most unfavorable course and terminate in death if not speedily relieved.

I have now treated eight cases of stricture of the esophagus each of which was caused by the accidental swallowing of lye. Some of these cases have been in children, some in adults. In all the stricture was a very small one, and in most the passage of even a filiform bougie was accomplished after several days of repeated effort. I found it impossible to get esophageal bougies small enough for the class of strictures I encountered, and therefore, I have had made a series of graded double-bulbed olive-shaped bougies which I show you here and which have given me a great deal of satisfaction. You will observe that on each staff there are two bulbs, the first being one size of the

French scale smaller than the second bulb. This serves to permit us to follow up the advantage gained by passing one bulb by the immediate passage of one a size larger. Sometimes it will be impossible to increase these sizes more rapidly than one or two of the French scale in every three or four days, at other times we may succeed in dilating it a number each day. Much depends upon the degree of stricture and the depth of the original injury. Great gentleness and care are required, and if one meets with repeated lack of success in one day it is better to allow the patient to rest for a day or two, if his state permits it, and then try again. In children I have found it necessary to use a mouth-gag, in adults this has not been necessary. On inserting the bougie it is best to have the patient sit upright, in a straight-backed chair, the head thrown back somewhat, in order to straighten the line of introduction of the bougie. Instead of passing it directly back in the median line it is probably better to pass it into the pyriform sinus at the side of the larynx, which affords a funnel-like aperture that will allow the bougie to slide into the esophagus without encountering the bodies of the cervical vertebrae or the cricoid cartilage. Force should never be exerted. I have not spoken of retrograde dilation, nor of gastrostomy, or gastrotomy, in the treatment of these cicatricial strictures, because in my experience it has never been necessary to resort to such measures. While dilation is always more readily accomplished in recent strictures, yet, even in one which had existed for seventeen years, during which time the patient was obliged to live on liquid diet with a stricture measuring from 4 to 6 of the French scale, and who had lost all of his teeth by reason, I presume, of never having chewed solid food, I was able by persistent and painstaking dilation to stretch the stricture to a size sufficient to permit him to swallow solid food when reasonably well masticated.

I wish briefly to relate the history of eight cases which have come under my care:

Case 1. A child two years old had been at the "Fresh Air Camp" for malnutrition and persistent vomiting. When brought to my dispensary it was greatly emaciated, fretful and anxious-looking. The mother said it had not been able to retain anything for two or three days, even a teaspoonful of water being regurgitated in a few moments. I tested the child myself, and found the statement to be true; it was constantly crying for water, but could not retain the slightest amount. Suspecting a stricture and finding upon questioning the mother that the child had swallowed lye, though a very small quantity, as she declared. I endeavored to pass a bougie, but, meeting with an obstruction, was compelled to use a smaller one, a No. 8 French scale. Immediately after passing the bougie I handed the child a glass of water, and before we could get it away it had ravenously swallowed the entire contents of the glass and showed no inclination whatever to vomit. The child was brought for treatment at irregular intervals for a number of months. The progress was, however, very unsatisfactory, inasmuch as the mother would not bring it back except as the stenosis became too great for it to swallow water. At first the child regained its flesh and strength with surprising rapidity, but later as the treatments became more and more irregular, it began to decline, and the stricture became more and more difficult to overcome. The last time I saw it I was unable to insert a No. 8 bougie, and its condition was such that I could hardly expect it to live longer.

Case 2. This case was referred to me by Dr Ashmun, who saw him some time after the accident. When first seen by me he was in the hospital where he had gone for an operation. He was greatly emaciated, very weak, scarcely able to stand, and unable to swallow even water, so that we were obliged to give him nourishment by the rectum. I soon found I had no bougies small enough to pass the stricture, and, as he urgently requested an operation, saying that he could not and would not live any longer in that condition, I intended to perform a gastrostomy, but succeeding in procuring a very small whalebone probe I managed to pass it, after which he managed, by taking a very small amount of liquid at a time, to retain it. Following up my advantage, I had a series of double-bulbed bougies made, and soon had this stricture dilated to a No. 12. He then became impatient and left the hospital,

able, however, to drink milk. I did not see anything further of him for nearly two weeks, when I was sent for, and found him again unable to swallow even water. It was with the greatest difficulty and perseverance that I passed my smallest probe and afterwards dilated the stricture gradually to a No. 22. Then he passed out of my care, retaining two of my bougies which he had learned to pass himself. He could swallow semisolid foods and even eat meat, but only in very small quantities finely chewed and washed down with water and milk. He had grown fat and strong, weighed more than ever before in his life, and was very content to get along in the way he then was. I am satisfied that I could have dilated to a much larger number, but he thought he was well enough and could not spare the time.

Case 3. This was a child two and one-half years old, who had accidentally swallowed less than a teaspoonful of red-seal lye four weeks before I saw him. Following the swallowing of the lye he could not eat anything for three days. Then he began to eat and nothing serious was suspected for three weeks, at which time he could swallow only milk. This condition persisted up to the date of his first visit to my office. Attempting to pass a large bougie I was unsuccessful, but the small No. 6 passed readily, and I was able to dilate it gradually at subsequent attempts up to No. 28 French. I then supplied the parents with a rectal tube of this size, and they pass it at intervals sufficient to maintain patency. The child gained rapidly after the first dilation.

Case 4. C. M., who is now 24 years of age, swallowed when two years old a small amount of lye and as a result had a very sore mouth, but no bad results so far as subsequent nutrition was concerned until after an attack of scarlet fever and diphtheria when six years old. From then on he was obliged to live on milk and soft bread, or potatoes, being unable to swallow anything that was in the least hard or needed chewing. Since the age of twenty he has had no teeth, they having all decayed or dropped out, partly no doubt from improper nutrition owing to his limited diet and partly through disease. I first saw this patient in December, 1897, and at the first attempt to pass an esophageal bougie was unable to pass any size not even the filiform until after three or four attempts. It took a

great amount of care and patience in this case to gradually dilate the stricture up to No. 18 owing to its long standing and extreme resistance to dilation. This stricture was very near the cardiac end of the esophagus. Owing to his leaving the city I never had an opportunity to dilate to any larger size, but in June, 1899, he called at my office and informed me he was able to eat meat, chicken, veal, bread, potatoes, etc.

Case 5. Mrs. A., aged 50 years, was referred to me by Dr T. E. Griffiths. On September 4, 1898, she accidentally swallowed lye which had accidentally dripped into a pie, one teaspoonful of the juice being taken and producing immediate caustic effect, blanching the mucous membrane of lips, tongue and pharynx. She was taken to Dr Griffith for treatment. Milk being the only thing obtainable at the time it was given in large quantities. The stomach-tube was passed and washing of the stomach was attempted, but the food which had recently been taken plugged the tube and rendered it useless. 1/10 gr. of apomorphin was given hypodermically and free emesis was produced accompanied however by marked prostration. The following day she complained of pain over pit of stomach and on deglutition. On September 22 she called on Dr Griffiths, complaining of constant regurgitation of food which could not be taken and retained unless chewed very thoroughly and taken slowly and with considerable liquid. The condition grew steadily worse till December 1 when small quantities of liquid food only and that very slowly could be taken. She had two strictures, one about two or three inches from the base of the tongue and the other about six inches farther down, the latter seeming to extend a distance of nearly two inches. When she was referred to me it was with difficulty that I succeeded in introducing the smallest bougie, but having finally succeeded in doing so the subsequent passage at intervals of two or four days of gradually-increasing sizes enabled me to dilate it to about No. 26, after which time being able to swallow solid food she disappeared from my care, having already gained materially in weight.

Case 6. This case hardly deserves to come under a report of personal cases, as I know very little about him. He was the husband of the case referred to as Case 5, and acquired his stricture at the same time, both having swal-

lowed the lye supposing it to be the juice of the pie. His wife told me his stricture was just as bad as hers, but for some reason he would not come to my office, so that as I succeeded in passing a bougie in Case 5 she would take the same bougie home and pass it on her husband, so that his stricture was dilated at the same time and she informed me that he was able to eat solid food again.

Case 7. W. B., age 6, in August, 1898, swallowed a mixture of Babbit's lye and ammonia, quantity not known. On September 24, about four weeks subsequently, he was brought to my office to decide as to the necessity for operation. He was then much emaciated and able only with great difficulty to swallow liquids. I failed entirely on that day and again on September 26 to pass even a filiform bougie. On September 28, I was able to pass a filiform bougie for a distance of about 8 inches. On September 30 I had increased the size to No. 8 of the French scale, but caused a very slight amount of bleeding, and this was followed by considerable pain. By October 7 I had passed a No. 12, and so continued slowly to increase the size until by October 30 a No. 24 was passed. A small rectal tube was secured, and his parents passed it once every week or two without any difficulty. As the child was able to eat all kinds of food and had gained rapidly in health and flesh they considered him cured, and I have not seen him since, though the father told me one month since that the boy was all right.

Case 8. L. F., aged 37, on July 27, 1900, swallowed a large amount of lye mixed with whisky with suicidal intent. She was taken to Charity Hospital in an ambulance. Her stomach was washed out and citric acid administered. Morphin was given for pain. On July 29 she left the hospital. On September 29 she was sent to the hospital by her attending physician for a gastrostomy. She was in a pitiable condition, being unable to swallow even fluids, and had decreased in weight from 127 pounds to 94 pounds. I did not succeed the first day in passing the filiform bougie, but on October 1 passed it, and from that time to October 16 passed a bougie daily, increasing the size slowly till I succeeded in reaching a No. 26. The patient was rapidly gaining in flesh, being able to eat and drink the regular hospital meals. Being as she supposed entirely well, she soon became intractable and left the hospital without permission on October 16.

I present these cases and this simple means of treatment believing that the early adoption of this method by graduated double-bulb bougies will in a great many cases render the performance of gastrostomy and retrograde dilation unnecessary, even in some of the most serious cases.

DISCUSSION

Dr F. C. Larimore, Mt. Vernon: This subject is of great importance to the general practician, as these cases fall under his observation first. I do not understand it, but in the past two years I have had not less than three cases of children coming to me who had drunk lye. They were all under two years of age. Treatment was not commenced early enough, but the general practician cannot be blamed for this. One could hardly believe under the circumstances that so great structural changes would take place so soon, and especially in the second case. In this instance the lye-can had been under the eave of the house. The lye had all been removed, and the empty can placed there. The water from the roof dropped down into the can, and it was this water that the child drank. The first physician who saw the case said that there was no trouble with the esophagus, but the child refused to take any nourishment for a week because of a slight burning in the mouth, and came almost to the point of starvation because it could not swallow liquids with any comfort. In these cases I used the ordinary urethral bougie, commencing with a small one and gradually increasing the size. I then obtained an esophageal bougie of considerable length, and put in the hands of the parents to use. I put a thread around it at the point at which they should stop when that part reached the mouth. These little patients can learn to use these bougies themselves. I recall one case in particular in which the child was so afraid when it would approach my office that it would begin to cry most bitterly. The father, who generally came with the child, would have to hold the child's legs between his, and also restrain its hands while I put in the gag, but after a while the child learned to use the bougie himself. The child lived in the country, and it was somewhat of a hardship for the father to bring the child in. The second child came to my place for awhile and I understand she is now using the bougie herself, and I presume that they will continue to

keep up the treatment. I did not advise a dangerous operation for the relief of their strictures, hoping that they will always be able to keep them up to the normal standard by the occasional use of the bougie.

Dr Frank E. Bunts, Cleveland, closing: I have very little to add further. It is surprising how small an opening in the esophageal tube is compatible with a comfortable existence and good bodily nutrition. If you can get the stricture dilated to No. 26, or even No. 24, and certainly No. 28, he will be able to live with a great deal of comfort. The fact that he has to pass a bougie, rectal tube, or anything else that is capable of keeping up the size, does not add very much to his discomfort, and it is no task at all for them to pass the dilator. In several cases in which patients have been sent to the hospital for a gastrotomy on account of being unable to swallow even a drop of water, and so emaciated that they had lost from 20 to 40 lb., by dilating the stricture until I got up to a No. 18 or No. 20, the patients were able to take food and commenced to gain rapidly in weight, and the operation was rendered unnecessary.

From my experience with extreme cases I would say that most of them, if not all, can be treated satisfactorily by the methods which I have used.

LARYNGECTOMY

BY GEORGE W. CRILE, M. D., CLEVELAND

Having noticed in the literature of the subject that at the moment the rubber bag of the cannula of the Trendelenburg apparatus was inflated, alarming cyanosis occasionally followed, and further having noticed in their reports that surgeons have encountered sudden changes in the heart's action and the respiration during the final removal of the larynx, and especially having observed the latter striking phenomena in my own operations, a research was undertaken to discover the cause and possibly point out the means of avoiding the same.

The aim of the surgical technic has been to develop a method whereby hemorrhage into the pulmonary tract and

septic pneumonia may be guarded against, and the operation performed with dispatch.

The operative technic as herein described was developed through operations on dogs and upon the cadaver. Various methods and devices were tried; recognized methods were tested; and finally the present technic was adopted.

Technic. The preliminary preparation of the patient is of considerable importance. Forced feeding should be practiced several days immediately preceding the operation, thereby enabling the patient to better endure the first few days of diminished nutrition following the operation. Low tracheotomy should be performed ten days or more previous to laryngectomy, thereby allowing the patient to become accustomed to breathing through a tracheal tube, to lessen the time of the major operation, and as a preliminary to the technic to be described. The tracheal tube used is a combination of the conventional silver cannula, over which a piece of best quality of soft rubber drain-tube has been snugly drawn; the tracheal end of the latter is allowed to project beyond the tracheal end of the metal tube, partly as a protection to the trachea, and partly to increase the length of the average tube, which is usually too short. The size should be as large as can be easily introduced, so that ample breathing caliber is insured. The best quality of rubber drain-tube thus attached to a rather short metal tube makes almost an ideal tracheal tube; it remains patent under the most violent paroxysms; it prevents irritation on swallowing; it cannot injure the trachea; its flexibility allows its introduction and removal with the greatest facility and without causing injury or hemorrhage; it is safe in the hands of a nurse; is easily cleaned; and, above all, is always procurable in suitable dimensions at any time. Anyone ever having been under the stress of a threatened suffocation when the longest tube in his armamentarium was too short to reach the recoiled tracheal rings, will never fail to appreciate the great importance of this simple device. He may also

find that the ordinary tracheal retractors are too short. At this critical moment the labored inspiration retracts the trachea to an incredible depth within the chest. Granulation-tissue soon springs up after the tracheotomy and comes everywhere in contact with the rubber tube, making the escape of air around the tube impossible. A Trendelenburg anesthetizing apparatus should be attached to a heavy rubber tubing of sufficient length to carry it away from the field of operation, the other end of the tube being adjusted to the trachea as a tracheal cannula would be. In other words, the rubber tubing about eight to twelve inches long serves as a long tracheal tube, one end inserted into the trachea, the other attached to the inhaler. During and after the operation the patient's chest should be enveloped in a chamois-skin jacket.

A quarter of an hour before the anesthetic a hypodermatic injection of a quarter-grain of morphin and a hundredth-grain of atropin should be given. For this injection there is a distinct physiologic indication. Atropin paralyzes the terminals of the vagi, hence prevents both reflex and direct inhibitory action. In the operation of laryngectomy, mechanical stimulation of some of the branches and terminals of the pneumogastric is necessarily made, and thereby the respiration and the heart action may be partially or completely inhibited unless protected by a physiologic dose of atropin. Operators have rather frequently noted alarming collapse and respiratory arrest in some of the later steps in the operation. Professor Wolf reports a case in which this occurred three times at the moment the Trendelenburg apparatus was inflated, and finally was obliged to dispense with its use. As soon as possible a 4% solution of cocain should be applied upon the mucous membrane of the larynx.

The position of the patient during the operation should be such that blood cannot trickle into the larynx or the trachea. The patient having been placed in position a horse-shoe flap at a distance of an inch from the superficial tracheal

wound, including the skin only, is dissected up near to its margin; each margin of the skin-flap is held by forceps, or caught with a suture and carried around behind the long tracheal tube. This skin-flap is turned up so as to form a collar around the tracheal orifice, thus effectually preventing entrance of blood into the pulmonary tract, no matter how much the hemorrhage may be nor in what position the patient may lie. This greatest difficulty and danger is at once eliminated from the operation. A median incision is carried upward to the hyoid bone, and from this point incisions are made parallel to that bone. The larger vessels are divided between forceps as the incision is carried down upon the larynx in the median line. But little hemorrhage is encountered. By means of a narrow curved and sharp periosteotome, made especially for the purpose, closely hugging the box, the anterior and the lateral sides are readily freed. This is facilitated by controlling the position of the larynx by attaching a forceps or nook. Thus, beginning at the median line of the cricoid aided by turning the larynx in a similar manner now to one side, now to the other, the entire cricoid is separated. Always hugging the cartilage, the esophagus and the larynx are cautiously separated, freeing the entire larynx excepting its pharyngeal attachments above and the tracheal attachments below. Inserting a tenaculum into the exposed trachea, and with the periosteotome under it, the trachea is severed, and the free end is elevated at once, to prevent the entrance of blood. The divided larynx is now raised up and the upper attachments severed with a scissors. The bleeding here is readily controled. The severed pharyngeal walls are brought together by sutures, thereby separating the pharynx from the pulmonary tract. The trachea is anchored to the skin by sutures. A large piece of iodoform gauze is spread over the gaping wound, and strips of gauze are packed down upon this large piece. The severed end of the trachea is thereby closed. Communication being wholly shut off above by suturing, and below partly by the rubber tracheal tube, and

completely by the gauze packing, the large wound frequently the source of so much trouble and danger is safe and easily managed. The importance of this cannot be too much emphasized, since the greater number of deaths following this operation are due to the advent of infection into the pulmonary tract.

The after-treatment is the same as in any ordinary open wound. Repair is rapid. No stomach-tube is used, but instead a soft catheter is passed through the mouth into the esophagus from time to time, and through a funnel attached to its free end, feeding is accomplished. The patient usually prefers to introduce the catheter himself. To feed the patient in this manner for a number of days is less prejudicial to the wound, especially of the pharynx, than to permit swallowing, even when it may be done with but little inconvenience. With all these safeguards thrown about the possible sources of danger, the position of the patient in bed is of little importance and in ten days or two weeks he may be about at pleasure. There remains no necessity for the tedious inclined position of Bardenhauer.

Laryngectomy has been regarded as one of the most difficult and tedious capital operations, requiring considerable time for its performance. A search into the literature of the subject will show that even in the hands of experienced operators from one to three hours is consumed. By the methods described I performed the operation in from 25 to 45 minutes.

Case I. Total laryngectomy. Carcinoma. Male, aged 60 years. Recovery from operation, death in two and one-half months. The patient consulted a specialist regarding difficulty in breathing which came on after a long period of increasing hoarseness and final loss of voice. The breathing became so threatening that an immediate tracheotomy was necessary. This was performed, and after the patient had recovered from the effects of the operation and had become accustomed to the new method of breathing, a total laryngectomy was made. The disease, unfortunately, had extended beyond the limits of the larynx. Operation. After

adjusting a breathing anesthetizing apparatus to the tracheal opening, a horseshoe-shaped flap was made, the skin deflected, and caught upon this tube with the forceps. A straight incision was then carried up to a point above the level of the hyoid bone in the median line. The soft parts were separated from the box of the larynx, and by adjusting the larynx from side to side, it was freed from its muscular attachments. After the cricoid was separated from its attachments, a special-shaped curved periosteotome was employed in separating the cricoid. After this was completed the trachea was cut across, and the free end carried forward to prevent blood entering. The larynx was then raised up and in the further dissection, respirations suddenly ceased, the patient becoming very cynotic. The pulse was slow and intermittent and it seemed quite certain that death would quickly ensue. Respirations were finally resumed and the operation was completed. In the light of later experimental work, this was clearly a case of reflex inhibition through the superior laryngeal nerves.

Case II. By the courtesy of Dr Sherman I was permitted on August 25, 1894, to make a tracheotomy on a male patient thirty-two years of age, whose life was threatened by the encroachment of a tumor almost filling the larynx. I concurred with him in the opinion that the tumor was a carcinoma. Tracheotomy was made under cocain anesthesia. The diagnosis was confirmed by a microscopic examination of a small gland removed from beneath the sternocleidomastoid muscle. The cells showed active mitosis, indicating rapid growth. The entire larynx was enlarged in every direction, but more especially laterally. At the time of the patient's admission into the hospital he was also suffering from a severe bronchitis; after ten days this had well cleared up, and a total laryngectomy was made in accordance with the technic herein described. The patient made a rapid recovery, was able to sit up after the fourth day, and left the hospital at the end of two weeks. A troublesome cough, with fever and expectoration, which had existed for several months, disappeared during the first week after the operation. The wound healed rapidly, and at the end of two months he had gained 38 pounds. Later he returned to his work as blacksmith, and continued for several months; after the lapse of six months a large gland was removed from the right side of the neck. I did not

again see the patient for about six months, when an inoperable secondary growth, involving almost the entire anterior and lateral sides of the neck was found. The patient died sixteen months after the operation.

Case III. Total laryngectomy, occupation lithographer, single, father living, mother died of mammary carcinoma at thirty-five. No history of venereal disease. The patient had been in good health until four years ago, when he had hoarseness and sore throat. The hoarseness gradually grew worse. About two years previous to his entrance into the hospital he fell in the street in a "choking spell"; a physician made a tracheotomy and he had been obliged to wear the tube ever since. During the past five months he had lost thirty pounds. Drs Baker and Marvin, to whom I am indebted for the case, regarded it with suspicion. Dr Marvin removed two pieces which were examined by Dr Ohlmacher who pronounced it granulation tissue. The growth had been under observation at other dispensaries for several years, and in comparing notes it was found that it resisted all treatment, and showed a tendency to gradual invasion from below upward, so that at this time it extended from the upper two or three rings of the trachea throughout the larynx, thereby making it almost impossible to provide for breathing. The discharge from the ulcerative surface was considered the cause of the persistent bronchitis. In view of the extent of involvement and its resistance to all treatment total extirpation was made. The patient made a rapid recovery from the operation, improved for a time, but had recurrences of fever, and after a month or more complained of sharp abdominal pains; the abdomen and the spleen enlarged, his lungs became involved. His general condition improved only temporarily; at the end of eight months he died. The autopsy revealed extensive tubercular involvement of the viscera.

Case IV. Male, aged thirty-five, a barber by occupation, without any personal or family history bearing upon the malady in question. Experienced hoarseness about two years previous to the operation. The cause of the hoarseness was a papilloma of the left vocal band. Dr Page seeing the case, recognized its gravity, and referred it to Dr Sherman for consultation. The latter with Dr Page, concluded that the growth was of malignant character, removed a piece, which was submitted to a pathologist for diagnosis.

The examination showed the growth to be a carcinoma of rapid development, as indicated by the mitosis and the number of inclusion-cells. There was infiltration of leukocytes, and the tissue was swarming with bacteria. Total extirpation of the larynx was made. The anterior wall of the larynx was considerably thickened, which was supposed to be an extension of the growth. This thickening extended downward upon the upper rings of the trachea. This was found to be inflammatory infiltration, due to the advent of infection through the cricothyroidean space upon the outer aspect of the box of the larynx, where a pus-cavity of considerable size was situated. A sinus was found leading down from this cavity through the above-mentioned space, hugging the inner surface of the thyroid. On raising the larynx it was found that the growth extended to the base of the tongue and in the tissue lying laterally to the opening. The patient made a rapid recovery from the operation, and was able to sit up in bed on the afternoon of the same day, and at the end of the week was able to leave his bed. He has for some time returned to his former employment, has gained 25 pounds in weight, and is enjoying robust health. By means of buccal sounds he is able to talk. Five and a half years after the operation there was no recurrence.

Case V. Laborer, aged 63. Cancer of the larynx. Recovery from the operation. Death from the disease. Diagnosis of malignant disease was definitely made out by submitting the specimen taken from the growth in the larynx to a microscopic examination. A preliminary tracheotomy was made, and the same precautions observed as in the preceding case. However, in spite of such precautions, just as the larynx was being freed in its upper attachments, complete arrest of respiration suddenly occurred. It was of course due to mechanical irritation of the superior laryngeals. The anesthetist maintained artificial respiration by blowing in the rubber tracheal tube a few minutes while the removal of the larynx was completed. Respirations were then resumed. The application of ice and heat alternately on the chest and abdomen proved efficient respiratory stimulants.

Case VI. Male, aged 56, German. In March, 1892, he noticed difficulty in swallowing and a beginning loss of voice. Prior to this he had suffered with several attacks of hoarseness, dyspnea and coughing. Laryngoscopic exami-

nation at this time, March, 1892, revealed an intralaryngeal growth of large size involving the entire right half and of probable malignant nature. The administration of large doses of potassium iodid for five or six weeks gave no apparent change in either the growth or general condition. The malignant character of the tumor in the meanwhile was confirmed by microscopic section. On May 1 dyspnea was most marked. The tumor at this time was found to have rapidly increased in size, and the remainder of the larynx was severely inflamed. May 10, Dr A. R. Baker performed a tracheotomy. Total extirpation of the larynx was advised. The patient, however, declined this and returned home. On July 1 he suffered marked dysphagia, subsisting entirely on liquid diet. On July 5 he returned for operation. High, constant fever, harassing and unremitting cough, and bronchial râles on both sides were present. Operation was delayed, owing to the danger of postoperative pneumonia. At this time also noticed that milk when swallowed appeared in the tracheal tube, thus indicating the presence of an esophageal fistula. On July 12 performed a total laryngectomy, which resulted in recovery. Death 2½ months later from recurrence.

BIBLIOGRAPHY

HISTORY

First experimentally tried by Albers of Bonn in 1829. In two cases of total laryngectomies, two deaths were recorded. In two partial, two cures. From these results Albers did not think that the operation was justifiable in man.

Langenbeck, 1854, proposed the operation to a patient who did not consent. Langenbeck, however, at that time spoke to the students at his clinic concerning the operation.

Koeberle, 1856, also spoke of the possibility of partial and complete extirpation of the larynx.

Watson, Edinburgh, 1866, was the first to perform this operation on man in a case of syphilitic stenosis of the larynx. The patient died of pneumonia three weeks after the operation.

Billroth, 1873, first performed this operation for carcinoma of the larynx. Death occurred seven months after from recurrence.

1874. Laryngectomy was performed five times for carcinoma. In four cases death resulted from three to fourteen days after the operation, and in one six months after.

Bottini, 1875, performed a laryngectomy for sarcoma, the patient surviving 13½ years after.

Besides for malignancy, laryngectomy has also been performed for the following:

Syphilitic stenosis	1
Traumatic stenosis	2
Chronic laryngitis	1
Necrosis thyroid cartilage	1
Myxochondroma	1
Tuberculosis of larynx	9

Stetsman claims to have collected 12 cases of tuberculosis of the larynx for which laryngectomy was performed. (N. Y. Med. Monatschr., 1898.)

Papilloma several times. Once upon a child two years old who did not survive the operation.

The greatest number of laryngectomies occurred in 1886, there being 28 or over during this year.

PREPARATION FOR OPERATION

Treatment of all nasal, oral, pharyngeal, pulmonary and gastric catarrhs.

Extraction of carious teeth.

Spraying nose, mouth and throat for some days prior to and also after the operation.

Forced feeding to improve general condition, and also of value as patient has to live on restricted diet for some days after operation.

Preliminary tracheotomy, 7 to 10 days prior.

1. This enables patient to become accustomed to new method of respiration.

2. Improves the general condition in many cases.

3. Allows firm connection to take place, especially in Cohen's method of suturing trachea to skin, so that in coughing after operation trachea cannot be torn from its attachments. This has occurred in one case in which tracheotomy was performed at the time of operation.

4. Allows irritation due to tube to subside (Delavan).

5. Saves time at operation (Halstead, Delavan).

Administration of morphin and atropin to prevent cardiac and respiratory reflex disturbances. (Halstead).

Anesthetic. Chloroform advised by all. Irritating action of ether on pulmonary mucosa was found by Simon to occur even in rectal administration of ether. In Mikulicz clinic partial chloroform anesthesia is used as in all operations where blood and secretions are apt to flow into the trachea. Partial presence of the reflexes enabling the patient to cough these up. Eucain anesthesia has been tried but once for total extirpation of the larynx, the operation being completed without much pain, the patient dying of streptococcus infection a few days after. (Davies, G. G., Annals of Surgery, Jan., 1901.)

Position. 1. Rose's position, head hanging back.

2. Trendelenburg position.

3. Half-sitting position (Mikulicz Clinic).

4. Horizontal position.

Are probably not of much importance.

Tracheotomy. Cohen first practiced resection of trachea and suturing the same to the integument. Has for its advantages that the tracheal opening is thereby removed from the field of operation. That a tracheotomy tube need not be worn nor a cannula used at the operation, and also that the secretions of the wound and pharynx are excluded from the respiratory tract. The disadvantage as some state that an artificial larynx cannot be applied.

Prophylactic injection of antistreptococcus serum. Watson Cheyne has in late years experimented with antistreptococcus serum with the object of preventing sepsis. Uses it in all cases where this is to be feared, injecting from 10 to 20 c. c. one or two days before operation, also on the day of operation and a few days after the operation. Results of these experiments are as yet unknown, i. e., as to their definite success.

OPERATION

1. Isolation of pharynx from wound first advised and practiced by Bardenheuer, who found that the mortality was thereby reduced from four deaths in five operations to four straight successes. Communication between pharynx and trachea can later be established, if so desired for purpose of wearing artificial larynx.

2. Two rows of sutures in isolating pharynx from wound first used by Poffort.

3. Rotter reinforced these two rows of sutures with another row, uniting the divided ends of the muscles.

4. Prophylactic resection of the trachea and suturing same some distance below wound practiced by Gluck, 1890. Mortality reduced from 45% in 11 cases to 11.1% in 9 cases.

5. Foederl, 1899, advised suturing divided trachea to hyoid bone, and then sewing muscles and integument over this. Continuity of respiratory tract is thus reestablished at once. Says that trachea is to some extent put upon the stretch, but that this can be easily done with no bad after-effects resulting. A case which he operated on in this manner left his clinic 14 days after operation. Union by first intention.

Hippel also tried this method. On the seventh day after the operation the sutures gave way, and the trachea sank down into a cavity of pus. Claims that trachea became gangrenous either from the tension put upon it or from infection, probably the former. Patient was in a perilous condition for some time owing to pulmonary complications, but ultimately recovered.

DIFFERENT METHODS

1. Complete extirpation, dividing all muscular attachments.

2. Subperichondrial resection, dissecting loose perichondrium and leaving muscular attachments intact (Morris method).

3. Exsection of larynx. Excision of interior of larynx only and leaving behind thyroid cartilage, a small median strip of which is removed. Has for its advantages that all muscular attachments remain intact, especially inferior constrictor muscles of pharynx. This method of operation was suggested to Cohen from the fact that carcinoma seldom invades cartilage. Has for its advantages that it consumes less time and is less dangerous. Said to give sufficient access to both esophagus and pharynx, and applicable in both uni- and bilateral extirpation. Has been done but once upon the living. (?) (Cohen's method.)

4. Bottini's method. Cauterizing tissues around larynx with blade-shaped cautery and so separating it from its attachments. Bloodless method and probably the most effective in destroying cancer cells.

5. Pean's method. Breaking larynx by means of forceps and removing it in pieces after dissecting loose from perichondrium.

6. Cohen also proposed at one time of leaving behind median portion of thyroid cartilage and thereby preserving muscular attachments.

Epiglottis according to some had better be removed as recurrence in carcinoma is liable to occur here. In all cases in which it was removed its absence gave use to no disturbances, and it is therefore thought by some to be of not much importance during the act of swallowing. Bardenheuer and others use the epiglottis for esophagoplastic purposes.

Larynx can be removed either from above downwards or below upwards. The former has for its advantage that the division of the trachea from the larynx is the last step in the operation, and little blood can thus find its way into the respiratory tract.

Cannula. Hahn's, Trendelenburg's, and others used by most operators. Best to remove them after the operation, as blood and secretions are easily retained in them and may rapidly decompose.

Hemorrhage. Found by most not to be very severe, by many not even mentioned. Rose's and Trendelenburg's in causing venous stasis aggravate it. Wolff practices methodical compression on one part while operating on another part. Also keeps close to cartilage, thus avoiding cutting into vascular tissues.

Cocain. Application of cocain to laryngeal mucosa is mentioned by few. Relieves reflex coughing and renders mucosa anemic. The latter is said to be quite marked and therefore also lessens hemorrhage to some extent.

After-treatment. Food. Time at which administered by mouth is given variably by different operators, some giving it the day following, others using enemas up to 4 or 5 days after. Vomiting occurred in some cases in which the patients were fed by the mouth in the first few days following the operation, and the food finding its way into the trachea and

wound, gave rise to pneumonia and infection. Asphyxia can also be produced in this way, and which but for timely interference can easily become fatal. Some operators (Keen) advise following each teaspoon of food with a teaspoon of water so as to wash down the small food particles which might otherwise infect the wound.

Esophageal tubes not in extensive use during late years.

Nursing. Constant attendance of one who can deal with asphyxia, as this is apt to occur suddenly from both tracheal and bronchial secretions and also other causes.

Dressings. The use of iodoform had probably best be discarded, as several cases of iodoform intoxication have been recorded, at least one of which ended fatally. Aseptic gauze and other dressings are now more extensively used. Simon calls attention to the fact that packing the wound with gauze irritates the anterior wall of the pharynx which is partially supplied by the vagus. Both he and Butlin use insufflations of iodoform, pure or mixed with boric acid, and both state to have had good results from this practice. The frequent change of dressing to avoid infection is advised by some. (Mikulicz.)

Position. Rose's and Trendelenburg position for some days after the operation is strongly urged by Keen and others.

The Germans seem to lay but little stress upon this point, especially in Mikulicz's clinic, where it is thought best to get the patient on his feet the second day after the operation and so avoid hypostatic congestion and pneumonia.

Causes of Death. Pneumonia most frequent cause of death. Aspiration or Shluck pneumonia of Germans due to entrance of blood into respiratory tract during the operation and also to the subsequent secretion of wound. Death occurs usually about two weeks after the operation. Neudorfer calls attention to the fact that the air is no longer filtered in its new passage as in the nose, and that dust particles, etc., might easily give rise to and can be considered as a causative factor of pneumonia, bronchitis, etc. Heat and moisture are said to be sufficiently supplied by the tracheal mucosa.

Sepsis. Infection of the loose cellular tissues of neck may easily give rise to mediastinitis, pericarditis, etc.

Hemorrhage, secondary, stated to have occurred in a number of cases.

Shock relatively infrequent cause in proportion to the number of operations.

Iodoform intoxication has resulted in a number of deaths.

Pulmonary edema. Its occurrence is explained by Grossman by a descending neuritis of the vagus, caused by the wound discharges, antiseptic solution dressings or other stimuli which tend to weaken or arrest the cardiac contraction and thus interfere with the pulmonary circulation. From a number of experiments on dogs, in which he severed both inferior and superior laryngeal nerves and stimulated both ends electrically, Grossman came to the following conclusion: Stimulation of the central end of the divided superior laryngeal nerve causes increased arterial pressure through a reflex action in the medulla. Insufficiency of the left ventricle is produced by the increased arterial pressure. If now in conjunction with this the trunk of the vagus is also stimulated, insufficiency of the auricles is produced and cardiac failure and pulmonary edema result.

Cardiac Paralysis. In many cases death results suddenly 4 or 5 days after the operation, or even on the second day. The pulse in these cases is very rapid, in others very slow, and is accompanied by dyspnea and collapse. Several theories have been put forth to explain this peculiar mode of death.

Stork explains cardiac failure by assuming that the depressor fibers of the vagus sometimes take an anomalous course through the superior laryngeal nerve from which they branch off to unite with the cervical sympathetic or the vagus. In extirpation of the larynx the superior laryngeal nerves would be severed and with it these depressor fibers. According to this theory, however, death ought to ensue at once. Nor does it explain those cases of death with a slow pulse.

Alpiger made a series of dissections on human cadavers to establish if possible the presence of such a depressor nerve. He found that in some cases a branch was given off from the superior laryngeal nerve which united with the sympathetic or in some cases with the vagus. This branch, whose presence, position and relation was quite variable on both sides, he believes to be composed of depressor fibers and describes as being usually found in one of three positions. Most commonly it lies among or upon the muscular fibers of the inferior constrictor of pharynx. In other cases it forms a fine network of nerves lying lateral and posterior to trachea, and covered by the thyroid gland. Most seldom it is found in close contact with the larynx, and so would almost necessarily be severed in extirpation of the larynx.

Grossman concludes that the delirium cordis is due to an infective neuritis of the superior laryngeal nerve, which when it also involves the vagus acts as constant stimulus, thus causing death, and especially so if the heart be weak.

CARCINOMA

Krieshaber's division of carcinoma of larynx.

1. Intrinsic.
2. Extrinsic.

Intrinsic, within cavity of larynx, originate in vocal cords most frequently, also from ventricles and parts below cords.

Extrinsic take their origin from epiglottis, aryepiglottis and interarytenoid folds and other parts without cavity of larynx. Readily invade tissues adjoining larynx. Do not give as favorable prognosis as regards recurrence in operations.

Butlin partially divides operable and inoperable cases as to whether they are intrinsic or extrinsic.

Invasion of cartilage by carcinoma does occur, but seldom. Cartilage in such cases becomes soft and breaks easily. But little has been said about this.

Recurrence of carcinoma. This some attempt to avoid by keeping clear of the carcinomatous tissue, not cutting into it, and thus transplanting it in other parts of the wound. The cautery is used by some after extirpation of the larynx on those parts which seem to have been the most exposed to invasion.

Cancroids where epithelium tends to comefy are stated not to recur as readily. (Hahn.)

Papilloma of the larynx often suddenly becomes malignant, especially after endolaryngeal operations.

Glandular involvement not mentioned in most cases, occurs more often in extrinsic carcinomas. Deep cervical glands first affected, subsequent to this, supraclavicular glands. In intrinsic carcinoma the glands if at all affected, usually very late.

Sarcoma give better prognosis for operation as less liable to recur.

VOICE AFTER LARYNGECTOMY

Artificial larynx in many cases not desired, as it is troublesome and irritating. Last may be a factor in recurrence of carcinoma. Acquired voice after laryngectomy has been observed in a few cases. Depends upon development of airbag from pharynx, from which air can be expelled and what sets into vibration certain structures thus producing sound. S. Cohen in his case states that two mucous folds developed at sides of pharynx which acted as vocal cords. Others hold that the pillars of the fauces, soft palate, and even tonsils may functionate as such. Landois and Strübing state that in a case they observed the dorsum of the tongue at its posterior wall of the pharynx producing a narrow transverse slit. Air passing through this produced sound. When the tip of the tongue was protruded and held fast, no sound could be produced. The pseudovoice can be looked upon as a highly developed whispering voice which as is known is not produced by the larynx.

LARYNGECTOMY

1866–1875

Operator.	Year.	Sex.	Age.	Diagnosis.	Notes.	Operative Result.	Ultimate Result.	References.
Watson	1866	M	36	Stenosis lar. syph.	Trach. 1yr. prev.	D. pneum. 3wks. p. op.		Wasserman's Stat.
Billroth	1873	M	36	Carc. lar.	Trach. 4wks. prev.	R.	D. recur. 7m.	Langb. Arch., xvii, 843.
Heine	1874	M	50	Carc. lar.		R.	D. recur. 6m.	Langb. Arch., xix, 614.
Maas	1874	M	57	Adeno-fibro carc. lar.	Trach. 6wks. prev.	D. pneum. 14d. p. op.		Langb. Arch., xix, 607.
Schmidt	1874	M	56	Carc. lar.	Trach. 2m. prev.	D. collapse 5d. p. op.		Langb. Arch., xviii, 169.
Billroth	1874	M	56	Carc. lar.		D. pneum. 3d. p. op.		Langb. Arch., xxxi, 874.
Watson	1874	M	60	Epith. lar.		D. pneum. 14d. p. op.		International Med. Cong., 1881, iii, 253.
Schönborn	1875	M	72	Carc. lar.		D. pneum. 4d. p. op.		Berl. Klin. Wshr., 1875, 695.
Langenbeck	1875	M	57	Carc. lar. epiglottis-hyoid.	Trach. 4m. prev. Exc. lar. hyoid, epigl. phar. and oesoph.	R.	D. recur. 4m. p. op.	Langb. Arch. Suppl., xxi, 136.
Maltanowski	1875	M	47	Carc. lar.	Exc. right half 3m. prev.	R.	D. recur 2m.	Centralbl. f. Chir., 1882, 421.
Maltanowski	1875	M	59	Carc. lar.		R.	D. pneum. 3m. p. op.	Centralbl. f. Chir., 1882, 421.
Bottini	1875	M	24	Sarc. lar.		R.	R. 13½yr.	Gior della Acc. di Med. Torini, 1876.
Reyher	1875	M	60	Carc. lig. voc.		D. pneum. 11d. p. op.		St. Petersburg, Wehnske, 1877.

1876–1880

Operator.	Year.	Sex.	Age.	Diagnosis.	Notes.	Operative Result.	Ultimate Result.	References.
Gerdes	1876	M	76	Carc. lar.	Trach. inf. 6wks. prev.	D. collapse 4d. p. op.		Langb. Arch., xxi, 473.
Reyher	1876	M	60	Carc. lig. vocal.		D. pneum. 11d. p. op.		St. Petersburg Wshr., 1877, Nos. 17 and 18.
Watson	1876	F	60	Epith. lar. and gland		D. pulm. embolism 8d. p. op.		
Maas	1876	M	42	Carc. lar.		R.	D. recur. 2m.	Langb. Arch., xx, 585.
Bottini	1877	M	48	Epith. lar.	Lar. and part oesoph. cauterised.	D. pneum. 3d. p. op.		Centralbl. f. Chir., 1878, 469.
Kosnoski	1877	F	36	Epith. lar.		R.	D. recur. 9mo.	Centralbl. f. Chir., 1877, 461.
Foulis	1877	M	38	Sarc. lar.		R.	D. tbc. trach.	Lancet, 1877, 18, 10.
Wegner	1877	F	52	Carc. lar.	Exc. lar. and epiglottis.	R.	R. 5m.	Tauber's Statistics.
Landerer	1877		45	Carc. lar.		R.	D. 4m.	Baratoux's Tables.
Wegner	1877	F		Carc. lar.		R.	R.	Lancet, 1877, 560.
Foulis	1877	M	28	Sarc. lar.		R.	D. 19m.	Bohmer's Statistics.
Bruns	1878	M	54	Epith. lar.		R.	D. recur. 9mo.	Wien Med. Press, 1878.
Rubio	1878	M	41	Necrosis thyr. perichondrites.		D. Marasmus 5d. p. op.		Observ. Clin. Acad. de Medic., Madrid, 1878.
Czerny	1878	M	46	Lymphosarc. lar.		R.	D. recur. 15mo.	Maurer Berl. Klin. Wohr., 1883, Nos. 26 and 27.

Billroth	1879	F	43	Carc. lar. and phar. struma.	Trach. 9d. prev. Ex. lar. part. phar. and oesoph.	D. Mediastinitis 36hrs. p. op.		Langb. Arch., xxxi, 880.
MacEwen	1879	M	56	Carc. lar. phar. gland	Ex. lar. and part phar.	D. pneum. 3d. p. op.		
Langenbeck	1879	F	old	Carc. lar.	Trach.	D. collapse 3d. p. op.		Verhand. Deutsch. Gesell. f. Chir., x, Cong. I, 1885.
Billroth	1879	M	60	Carc. lar.	Trach. 6mo. prev. ex. lar. epiglot. par. trach.	D. pneum. 3d. p. op.		Langb. Arch., xxxi, 879.
Mulanowski	1879	M	60	Carc. lar.		D. pneum. 5d. p. op.		Centralbl. f. Chir., 1882, 421.
Gussenbauer ...	1879	M	24	Tbc. lar.	Trach. 2wks. prev.	R.	D. tbc. pulm.	Prag. Med. Wshr., 1883, Nos. 31-34.
Caselli	1879	F	19	Lymph. sarc. lar. phar. base of tongue and palate.	Ex. lar. phar. base tongue, soft pal. and tonsil.	R.	R. 7yrs.	Bull delle scienze med. di Bologna, 1880, Ser. vi, Vol. v.
Lange	1879	M	74	Fibro-sarc. lar. and oesoph.	Sup. trach. and thyrotomy 8m. prev. Ex. lar. part. oesoph. hyoid. b.	R.	D. recur. 7m.	N. Y. Arch. Laryng., i, 36.
Reyher	1880	M	48	Carc. lar.		D. pneum. 7d. p. op.		Wolner's Med. Jr., 1880, i.
Thiersch	1880	M	36	Carc. lar.	Trach. 5m. prev. Laryng. 3wks. prev. Later several operations for recur.	R.	D. recur 3½yrs.	Deutsch. Ztschr. f. Chir., xvi, 149.
Thiersch	1880	M	52	Carc. lar.	Trach. 6w. prev.	R.	R. 4½yrs. D. pneum.	Deutsch. Ztschr. f. Chir., xvi, 149.
Novaro	1880	M	63	Carc. lar.		R.	D. recur. 5mo.	
Billroth	1880	M	26	Carc. lar.		D. hemor. 8d. p. op.		Langb. Arch., xxi, 879.
Czerny	1880	M	47	Epith. lar.	Trach. sup. 4m. prev.	R.	D. recur. 5m.	Berl. Klin. Wsh., 1882, Nos. 26 and 27.
Thiersch	1880	F	45	Carc. lar. and phar.	Trach. inf. 3wks. prev.	R.	D. recur. 4m.	Deutsch. Ztsch. f. Chir., xvi, 154.
Busher	1880	F	48	Scirrhus. lar. and gl. thyr.	Exc. lar. and ant. wall oesoph. and struma.	D. pneum. lung gangrene apoplexy 16d. p. op.		Volkmann's Klin. Vortr., No. 222, p. 1901.
Kosuski	1880	M	50	Carc. lar.		D. pneum. 4d. p. op.		Deutsch. Med. Wshr., 1889, 65.
Kocher	1880	M	52	Lupus. lar.		R.	R. 3yrs. after died.	S. Cohen's Table.
Hahn	1880	M	68	Carc. lar.		R.	R.	Langb. Arch., xxxvii, 524.
Kocher	1880	M	71	Carc. lar.		R.	R. 6m.	Arch. Klin. Chir., xliv, 1892.
Meyer	1880	M	65	Carc. lar.		R.	D. recur. 6m.	N. Y. Med. Jr., xlviii, 1891.
Pick	1881	M	39	Epith. lar.		D. pleurisy and pyemia 4d. p. op.		Lancet, 1881.
Thiersch	1881	F	57	Carc. lar. and phar.	Exc. lar. and part phar.	D. pneum. 7d. p. op.		
Toro	1881	M		Epith. lar.	Lar. hyoid and base tongue.	D. pneum. 4d. p. op.		Table S. Cohen, N. Y. Med. Rec., 1881.
Winnivarter	1881	F	51	Carc. lar.	Trach. 2wks. prev.	R.	R. apoplexy 5yrs.	Clin. Chir. Liege, 1882.
Foulis	1881	M	50	Epith. lar.		R.	D. pneum. 8m.	Brit. Med. Jour., 1886, 815.
[illegible]y	1881	M	47	Epith. lar.		R.	D. recur. 18mo.	Berl. Klin. Wshr., 1883, 26.

Operator.	Year.	Sex.	Age.	Diagnosis.	Notes.	Operative Result.	Ultimate Result.	References.
Reyher	1881	M	57	Carc. lar.		D. pneum. 5d. p. op.		
Gussenbauer	1881	M	48	Carc. lar.		R.	R. 7½ yrs.	Prag. Med. Wshr., 1882, 31-34.
Tilanus	1881	M	51	Epith. lar.	Trach. 1yr. prev.	D. collapse 36h. p. op.		Centralbl. f. Chir., 1882.
Völcker	1881	F	44	Carc. lar.		R.	D. recur. 5m. p. op.	Centralbl. f. Chir., 1882.
Albert	1881	M	45	Carc. lar.	Exc. lar. and part. oesoph.	D. pneum. 8d. p. op.		Wien Med. Presse, 1881, 1878.
Hahn	1881	M	46	Carc. lar.		D. putrid bronch. 35d. p. op.		Wolkmann's Klin. Vortr., No. 200.
Margary	1881	F	36	Epith. lar.	Trach. 1wk. prev. Exc. lar. part phar. oesoph. thyrgl. and 1st trach. ring.	R.	D. recur. 6mo.	Arch. ital di Laring., Vol. i, 1882.
Reyher	1881	M	65	Carc. lar.		D. pneum. 7d. p. op.		St. Petersburg Med. Zshr., xxvii.
Reyher	1881	M	73	Carc. lar.	Exc. lar. and 1st trach. ring.	R.	D. recur. 9mo.	St. Petersburg Med. Zshr., xxvii.
Gussenbauer	1881	M	62	Carc. lar.		R.	D. pleuritis 6yrs.	
Schede	1881	M	54	Carc. lar.	Exc. lar. hyoid and thyrgl.	R.	D. recur. suicide.	Deutsch. Med. Wshr., 1882.
Kocher	1881	M	59	Carc. lar.		R.	D. 2yrs. recur. abd. visc., not in larynx.	Tauber's Statistics.
Chiarella	1881		44	Carc. lar.		R.	D. recur. 4m.	Baratoux's Tables.
Novaro	1882	M	65	Carc. lar.	Trach. 4m. Thyrotomy 4 wks. prev.	R.	D. apoplexy 14mo.	Wasserman's Tables.
Holmes	1882	M	57	Epith. lar.	Trach. 5m. prev.	R.	D. recur. 6mo.	Centralbl. f. Chir., 1884, 265.
Reyher	1882	M	55	Carc. epi. lar.	Ex. lar. part. oesoph. and phar.	D. collapse 14d. p. op.		Burrow's Table.
Whitehead	1882	M	46	Epith. lar.	Trach. 3w. prev. Exc. lar. trach. ring.	R.	D. recur. 1yr.	Lancet, 1882, 1741.
Kocher	1882	M	54	Carc. lar.	Exc. lar. part. phar. lt. thy. gl.	R.	D. recur. 7mo.	Burrow's Statistics.
Holmes	1882	M	63	Epith. lar.	Exc. lar. part. oesoph. Trach. 4wks. prev.	R.	D. recur. 4mo.	Wasserman's Statistics.
Burow	1882	M	45	Carc. lar.		R.	D. suffocation 5d. p. op.	Wasserman's Statistics.
Maydl	1882	M	50	Carc. lar. and gland.		R.	D. recur 32mo.	Wien Med. Presse, 1882.
Kocher	1882	M	43	Carc. lar. and phar.	Trach. 5m. prev. Exc. lar. part. phar. and oesoph.	R.	R. 2yrs.	Wasserman's Statistics.
Bergman	1882	M	54	Adeno-sarc. lar.	Trach. 5wks. prev.	R.	D. recur. 18mo.	Langb. Arch., xxx, 672.
Ruggi	1882	M	10	Polypi. lar.		R.	R.	Arch. ital Laring., 1882.
Hodgen	1882	F				D. 4d. p. op.		Baratoux's Statistics.
Iversen	1882	M	64	Lupus. lar.		D. bron. 4d. p. op.		Wasserman's Statistics.
McLeod	1882	M	35	Papilloma lar.		R.	D. pulm. T. B. C. 5½mo.	Lancet, 1882, ii, 455.

Maydl	1882	M	46	Epith. lar.	Exc. lar. and part. trach.	D. hemorr. 5d.		Wien Med. Presse, 1882.
Novaro	1882	M	52	Carc. lar.		R.	R. 5yrs.	Baratoux's and Tauber's Statistics.
Novaro	1882	M	72	Carc. lar.		R.	R. apoplexy 8m. p. op.	Tauber's Statistics.
Winnivarter	1882	M	46	Carc. lar.		R.	D. (?) recur. 7m.	S. Cohen's Statistics.
Winnivarter	1882	M	50	Carc. lar.	Exc. lar. part phar. and glands.	R.	D. 9m.	S. Cohen's Statistics.
Maurer	1882		44	Carc. lar.		R.	Recur. 1yr.	Baratoux's Tables.
Kocher	1882	M	54	Carc. lar.		R.	D. 7m.	Baratoux's & Cohen's Statistics.
Gussenbauer	1883	M	63	Carc. lar.		R.	R. 5¾yrs.	Prag. Med. Wshr., 1883, Nos. 31-34.
Winnivarter	1883	M	46	Carc. lar.		R.	R. 1yr.	Wasserman's Statistics.
Küster	1883	M	40	Carc. lar.	Lar. epi. 1st tr. ring.	D. gang. lungs 14d. p. op.		Indiisv Schuttenvach, Berlin, 1888.
Kocher	1883	M	59	Carc. lar.		R.	16m.	Wasserman's Statistics.
Schmidt & Rehn	1883	F	54	Carc. lar.	Trach. 8m. prev.	R.	D. recur. 2yrs.	Wasserman's Statistics.
Iversen	1883	F	43	Carc. phar.	Ex. lar. phar. part. oesoph. 1st trach. ring.	R.	D. Septicemia 13m. p. op.	Langb. Arch., xxxi, 647.
Novaro	1883	M	52	Carc. lar.	Lar. and trach. rings	R.	D. recur 4½yrs.	Wasserman's Statistics.
Leisrink	1883	M	72	Carc. lar.	Trach. 1wk. prev.	R.	D. pneum. 4mo.	Berl. Klin. Wshr., 1884, No. 5.
Maydl	1883	M	45	Carc. lar.		D. pneum. 4d. p. op.		Wien Med. Presse, 1884, xii, 364.
Bergman	1883	M		Carc. lar.		D. pneum. 4d. p. op.		Zesa Langb. Arch., xxv, 672.
Newman	1883	M	55	Epith. lar.		D. collapse 3d. p. op.		Brit. Med. Jour., 1886, 813.
McLeod	1883	M	40	Epith. lar.	Lar. epigl. part. phar. glands.	D. pneum. 5d. p. op.		Lancet, 1884, i, 750.
Novaro	1883	M	54	Carc. lar.	Exc. lar. part. phar. thyr. gland.	D. pneum. 1m.		Wasserman's Statistics.
Winnivarter	1883	M	56	Carc. lar.	Exc. lar. part. phar. glands.	R.	D. 1m. inanition.	Wasserman's Statistics.
Hahn	1883	M	58	Carc. lar.	Trach. 3d. prev.	D. bronch. 1mo.		Langb. Arch., xxxvii, 522.
Landerer	1883	M	47	Carc. lar. and phar.	Trach. 10d. prev. Exc. lar. part. oesoph.	D. collapse 4d. p. op.		Wasserman's Statistics.
Labbé	1883	M	59	Sarc. lar.		R.	Pneum. 2½yrs. No recur.	Bull de. Acad., Paris, 1885, 4.
Praetorius	1883	F	54	Carc. lar.		R.	R. 4m.	Deutsche Ztschr. f. Chir., xix, 621.
Iversen	1883	F	44	Carc. lar. and phar.	Exc. lar. part. phar. and oesoph.	R.	D. 3m.	Baratoux's Statistics.
-ke	1883	F	54	Carc. lar.		R.	R.	Tanba's Statistics.
.....	1884	M	43	Carc. lar.		R.	D. Marasmus 14mo.	Langb. Arch., xxxvii, 522.
.....	1884	F	29	Carc. lar.		D. pneum. 7d. p. op.		Interna. Centralbl. f. Laryng., 220.
.....	1884	M	44	Epith. lar.	Trach. 4d. prev. lar. part. phar. 1st trach. ring.	R.	Recur. 9mo.	Lancet, 1894, ii, 191.

Operator.	Year.	Sex.	Age.	Diagnosis.	Notes.	Operative Result.	Ultimate Result.	References.
Fisher	1884	M	49	Carc. lar.	Trach. 12wks. prev.	R.	R. 3½yrs.	Scheier's Statistics Centralbl. f. Chir., 1888, 22.
Schede	1884	F	54	Cancroid lar.	Trach. 2mo. prev. Exc. lar. trach. ring.	R.	R. 4½yrs.	Deutsche M. Wshr., 1889, 61.
Schede	1884	M	65	Carc. lar.	Ex. lar. epigl. trach. rings.	R.	D. pneum. 1yr.	Deutsche M. Wshr., 1889, 61.
Lange	1884	F	30	Carc. lar.		D. Sepsis 6d. p. op.		Ann. Surg., 1886, ii.
Iversen	1884	F	48	Epith. phar. and oesoph.	Exc. lar. part oesoph. and phar. 1st trach. ring.	R.	D. empyema recur. 15mo.	Langb. Arch., xxxi, 656.
Hahn	1884	F	52	Carc. lar. and oesoph.	Trach. 3wks. prev. Exc. lar. and oesoph.	R.	D. recur. 6mo.	Deutsche Med. Wshr., 1887, 470.
Durante	1884	M	45	Carc. lar.	Trach. 5d. prev. Exc. lar. and 2 trach. rings.	D. embolism cerebral art. 16d.		Wasserman's Statistics.
Loyd	1884	M	51	Tbc. lar.	Mistaken for carc.	D. purulent bronch. 6d. p. op.		Lancet, 1887, i, 114.
Holmes	1884	F	63	Epith. lar.	Exc. thyr. right half cricoid and part phar.	D. collapse 40hrs.		Brit. Med. Jr., 1884, ii, 809.
Maydl	1884	M	45	Carc. lar.		D. hemorrhage 7d. p. op		Baratoux's Statistics.
Hahn	1884	M	53	Carc. lar.		D. Mediastinitis 6d. p. op.		Langb. Arch., xxxvii, 535.
Gottstein	1884	M	49	Carc. lar.		R.	R. 3½yrs.	Scheier's Statistics.
Bergman	1884	M	50	Tbc. lar.		D. collapse 32hrs.		Wasserman's Statistics.
Mikulicz	1884	M	41	Stenosis lar.		R.	D. 9m. inanition.	Wasserman's Statistics.
Graf	1884	M	56	Carc. lar.		D. pneum.		Arch. Klin. Chir., 1897, lv, 399.
Graf	1884	M	46	Carc. lar.	Exc. lar. part oesoph.	R.	D. recur. 6m.	Arch. Klin. Chir., 1897, lv, 399.
Chiene	1884	F	32	Epith. lar.	Preliminary oesoph. to relieve dysphagia exc. lar. and oesoph.	D. pneum.		Wallace Edin. M. J., 1890, xxxvi, 382.
Bergman	1885	M	46	Carc. lar.	Trach. 2wks. prev. Exc. lar. epigl. and mula.	R.	R. 4yrs.	Centralbl. f. Chir., 1888, 44.
Park	1885	M	64	Epith. lar.	Trach. 14d. prev. Exc. lar. epigl. uvula.	R.	R. 14wks.	Med. Press Western N. Y., 1885, Dec.
Hahn	1885	M	56	Carc. lar.		D. bronch. and pleu. 10d. p. op.		Langb. Arch., xxxvii, 535.
Socin	1885	M	56	Carc. lar.	Ex. half then other half.	D. hemorr. 11d. p. op.		
Kronlein	1885		57	Carc. lar.		R.	D. 1m.	Baratoux's Tables.

Stoerk	1885	M		Carc. lar.		R.	R.	Wien Med. Wehn., 1887, Nos. 49 and 50.
Jadivinski	1885	F	63	Carc. lar.		R.	D. recur. 10m.	Deutsche Med. Wshr., 1889, 64.
Shede	1885	M	55	Carc. lar.		R.	D. recur. 2yrs.	Deutsche Med. Wshr., 1889, 61.
Hahn	1885	M	43	Sarc. lar.	Ex. lar. epigl.	R.	D. recur 5m.	Langb. Arch., xxxvii, 525.
Bottini	1885	M	53	Sarc. lar.		D. pneum. 3d. p. op.		Centralbl. f. Chir., 1887, 704.
Graf	1885	M	59	Carc. lar.		D. bronchitis.		Arch. Klin. Chir., 1897, lv, 399.
1886–1896								
Iversen	1886	F	49	Carc. lar.	Exc. lar. part phar. oesoph. thyr. gld. and 1st trach. ring.	R.	D. inanition 2wks.	Wasserman's Statistics.
Newman	1886	M	37	Epith. lar.	Trach. 2wks. prev. Exc. lar. 1st trach. ring.	R.	D. inanition 21m.	Glasgow M. Jr., Nov., 1886, and Feb., 1888.
Hahn	1886	M	60	Carc. lar.		D. pneum. 11d. p. op., erysipelas.		Langb. Arch., xxxvii, 525.
Pean	1886	M	35	Epith. lar.	Trach. 2wks. prev.	R.	D. alcoholism 20m. No recur.	Gaz. Med. de Paris, 1886, xvi.
Iversen	1886	F	27	Carc. lar. and phar.	Exc. lar. and part phar.	D. collapse 30hrs.		Wasserman's Statistics.
Iversen	1886	M	60	Carc. lar.		R.	D. recur. 7m.	Wasserman's Statistics.
Hahn	1886	M	51	Carc. lar.		R.	D. recur. 10m.	Langb. Arch., xxxvii, 525.
Kocher	1886	M		Carc. lar.		R.	R. 1m. (?)	Wasserman's Statistics.
Kocher	1886	M	44	Carc. lar.		R.	D. recur. 4m.	Wasserman's Statistics.
Iversen	1886	F	46	Carc. phar.	Exc. lar. phar. oesoph.	D. iodoform intoxication 6d.		Wasserman's Statistics.
Böckel	1886	M	58	Carc. lar.		D. edema lungs 12hrs.		Gaz. Med. de Strasburg, 1886, xii.
Gardner	1886	M	60	Epith. lar.	Exc. lar. and epigl.	R.	D. recur. 3m.	Lancet, 1887, i, 925.
Schmidt and Ziegel	1886	M	30	Carc. lar.	Trach. 8m. prev.	R.	R. 16m. (?)	Langb. Arch., xxxviii, 677-134.
Dupont	1886	M	52	Carc. lar.	Exc. lar. part. phar. epigl. and glands.	R.	D. recur. 16½m.	Wasserman's Statistics.
Rosenberger	1886	M	46	Carc. lar.		D. pulm. edema 12hrs.		Scheier's Statistics.
Kosinski	1886	M	62	Carc. lar.		R.	D. pneum.	Scheier's Statistics.
Morris	1886	M	59	Epith. lar.	Trach. 5m. prev.	D. collapse 8d. p. op.		Brit. Med. Jr., 1886, ii, 975.
Kronlein	1886	F	38	Carc. lar.	Trach. 8m. prev.	R.	D. recur. 18m.	Billeter Inaug. Diss. Zurich, 1888.
Iversen	1886	F	39	Epith. lar.	Exc. lar. part phar. oesoph. 1 lobe thyr. gland.	R.	D. 22m. tbc. pulm.	Wasserman's Statistics.
Agnew	1886	M	58	Epith. lar.	Exc. lar. part phar. oesoph.	D. suffocation 5d. p. op.		Med. News, 1887, i, 401.
Labbe	1886	M	51	Carc. lar.	Exc. lar. except part cricoid.	D. 14d. p. op.		Tauber's Statistics.

Operator.	Year.	Sex.	Age.	Diagnosis.	Notes.	Operative Result.	Ultimate Result.	References.
Pean	1886	M	65	Epith.	Exc. lar. except part cric. and epigl. part phar.	D. pneum.		Gaz. Med. de Paris, 1886, 16.
Mikulicz	1886			Carc. lar.		R.	D. few months.	Centralbl. f. Chir., 1888, 733.
Monodet and Renault	1886	M	63	Carc. lar.		D. pneum. few days.		Tauber's Statistics.
Wagner				Carc. lar.		R.	D. 3m.	N. Y. Med. Rec., 1887, 26.
Wagner				Carc. lar.		R.	D. 8m.	N. Y. Med. Rec., 1887, 26.
Wagner				Carc. lar.		R.	R. 2yrs.	N. Y. Med. Rec., 1887, 26.
Wagner				Carc. lar.		R.	D. recur.	N. Y. Med. Rec., 1887, 26.
Caselli		F	19	Carc. lar. (?)	Exc. lar. part phar.	R.	R.	Gaz. Med. de Paris, 1888, 1.
Bottini		M	53	Sarc. lar.	Cric. not exc.	D. pneum. 3d. p. op.		Tauber's Statistics.
Mikulicz	1886			Carc. lar.		R.	R.	Power's & White's Table.
Agnew	1886		58	Carc. lar.		D.		Baratoux's Tables.
Bohner				Carc. lar.		D. 12hrs.		Baratoux's Tables.
Sokowtowsky				Carc. lar.		R.	D. 8wks.	Baratoux's Tables.
Chiarella			72	Carc. lar.		R.	D. 8wks.	Baratoux's Tables.
Chiarella			65	Carc. lar.		R.	D. 13½m.	Baratoux's Tables.
Graf	1886	M	71	Carc. lar.	Exc. lar. part oesoph.	R.	D. recur 2½yrs.	Arch. Klin. Chir., 1897, lv, 399.
Labbe	1886	M	50	Epith. lar.	Trach. 6wks. prev. Exc. lar. trach. ring.	R.	D. (?) recur. 2m.	Wasserman's Statistics.
Kocher	1887	M	53			D. suddenly 7d. p. op.		Wasserman's Statistics.
Stelzner	1887	M	27	Carc. lar.	Trach. 7yrs. prev. Exc. lar. and presternal portion trach.	R.	D. hemorr. from wd. 20m. recur.	Langb. Arch., xxxvii, 393.
Novaro	1887	M	41	Carc. lar. phar.	Exc. lar. part phar. hyoid.	R.	D. recur. 7m.	Wasserman's Statistics.
Hahn	1887	M	37	Carc. lar.		R.	D. 4m.	Langb. Arch., xxxvii, 825.
Dupont	1887	M	56	Carc. lar.	Trach. 1yr. prev.	R.	D. recur. 4m.	Wasserman's Statistics.
Demons	1887	M	57	Epith. lar.		R.	R. (?) 10m.	Scheier's Statistics.
Parker	1887	M	39	Carc. lar.	Exc. lar. part phar. and glands.	R.	D. recur. 2m.	Liverpool Med. Jr., 1887, vi, 452.
Novaro	1887	M	72	Carc. lar. and phar.	Exc. lar. and phar.	R.	D. recur. 9m.	Wasserman's Statistics.
Caponotto	1887	M	57	Carc. lar.	Trach. 3wks. prev.	R.	D. recur. 7m.	Wasserman's Statistics.
Lange	1887	F	30	Epith. lar.	Trach. 5wks. prev.	R.	R. 1½yrs.	Wasserman's Statistics.
Gardner	1887	M	62	Epith. lar.		R.	R.	Lancet, 1888, i, 1242.
Krajewski	1887	M	51	Carc. lar.	Trach. 10.	R.	D. pneum. 9m. recur.	Deutsche Med. Wohsch., 1889, 65.
Iversen	1887	F	46	Papillaria lar.	Exc. lar. part phar.	R.	R. 4m.	Wasserman's Statistics.
Labbe	1887	M	58	Epith. lar.		R.	D. recur. 8m.	Baratoux's Statistics.
Bergman	1887	M		Epith. lar.		D. 6days p. op.		Baratoux's Statistics.
Billroth	1887			Carc.		D. same night.		Baratoux's Statistics.
Pelechin				Carc. lar.		D. few days and W.		Krajewski's Statistics.
Pelechin				Carc. lar.		D. few days.		Krajewski's Statistics.
Pelechin				Carc. lar.		D. few days.		Krajewski's Statistics.

Pelechin				Carc. lar.		D. few days.		Krajewski's Statistics.
Pelechin				Carc. lar.		D. few days.		Krajewski's Statistics.
Pelechin				Carc. lar.		R.	D. few m. Death unknown.	Krajewski's Statistics.
Bull	1887	M	62	Epith. lar.		R.	D. recur. 1yr.	Rec. N. Y. Hosp., 1887.
LeDentu				Carc. lar.		R.	D. (?) recur. 3m.	Gaz. de Hosp., 1888, No. 89.
LeDentu				Epith. lar.		R.	D. recur.	Bull. d. l. soc. de Chir., 1888.
Kocher	1887	M	53	Carc. lar.	Exc. lar. part phar.	R.	D. 1m.	Arch. Klin. Chir., 1892. xliv.
Branahan	1887	M		Carc. lar.	Exc. lar. part phar.	D. pneum. 4d. p. op.		Tr. Med. Chir. Fac., Maryland, 1888.
Roux	1887	F	61	Carc. lar.	Exc. lar. part phar. and glands.	R.	D. recur. (?) 4m.	
Chiarella	1887		54	Carc. lar.		R.	D. 4wks.	Baratoux's Tables.
Hjorth	1887	M	62	Sarc. lar.		R.	R. 3m.	Baratoux's Tables.
Parker	1887	M	39	Epith. lar.	Operated 2 times before and since.	R.	R. recur.	Brit. Med. Jr., 1887, 1099.
Hahn	1887	F	69	Epith. lar.		R.	R.	Berl. Klin. Wshr., 1887, xxiv, 999.
Hahn	1887	M		Carc. lar.	Partial exc. before.	R.	D. recur. 1½yrs.	Berl. Klin. Wshr., 1887, xxiv, 999.
Bardenheuer ...	1887	M	66	Carc. lar.		R.	R. 3yrs.	Schmidt Beitr. z. Oper. Chir. Inaug. Diss. Berl., 1891.
Riegner	1888	M	60	Carc. lar.	Exc. lar. part trach. and oesoph.	D. pneum. 4wks. p. op.		Wasserman's Statistics.
MacDonald and Symonds	1888	M	41	Epith. lar.	Recur. 3 times after local extirpation.	R.	R.	Brit. M. J., 1889, i, 996.
Westbrook	1888	M		Tub. lar.		D. few hrs.		Rec. St. Mary's Hosp., Brooklyn, 1888.
Brill	1888	M	40	Carc. lar.		R.	D. recur. 1yr.	Rec. N. Y. Hosp., 1888.
Fowler	1888	M	58	Carc. lar.		R.	D. recur. 2yrs.	Am. Jr. Med. Sc., 1889.
Hahn	1888	M	21	Traumater stenosis.		R.	R.	Arch. Klin. Chir., 1888, xxxvii, 525.
Graf	1888	F	58	Carc. lar.	Exc. lar. and part oesoph.	R.	D. 2m. exhaustion.	Arch. Klin. Chir., 1897, lv, 399.
Graf	1888	M	55	Carc. lar.		D. bronch.		Arch. Klin. Chir., 1897, lv, 399.
Graf	1888	F	45	Carc. lar.		R.	D. (?) gld. recur. 16m.	Arch. Klin. Chir., 1897, lv, 399.
Gardner	1888	M	73	Epith. lar.		R.	R.	Lancet, 1888, i, 1242.
Roser	1888	M	47	Epith. lar.	Exc. lar. part. phar. hyoid and thyr. gland.	R.	D. recur. 3½yrs.	Meder, Inaug. Diss. Marburg, 1893.
Rydyger	1889	M	36	Lupus. lar.	Exc. lar. part phar. and epiglottis.	R.	R. (?) 2m.	Wasserman's Statistics.
Caponotto	1889	M	25	Carc. lar.		R.	R. 3yrs.	Centralbl. f. Chir., xix, 1892.
Orechia	1889	M	55	Carc. lar.		R.	R.	Centralbl. f. Chir., xix, 1892.
Pouken	1889	M	56	Carc. lar.	Exc. lar. part phar.	D. pneum. 7wks.		Centralbl. f. Chir., No. 1, 1891.

Operator.	Year.	Sex.	Age.	Diagnosis.	Notes.	Operative Result.	Ultimate Result.	References.
Kocher	1889	M	71	Carc. lar.	Exc. lar. after exc. right vocal cord and recur.	R.	R.	Lang, Kehlkopfexstirpation, 1892, Berlin.
Billroth	1889	M	56	Carc. lar.		D. paralysis heart.		Arch. Klin. Chir., 1890, xl.
Fisher	1889	M	54	Carc. lar.		R.	D. recur. 5m.	Tretze, Deutsche Ztschr. f. Chir., 1891, xxxii.
Fisher	1889	M	51	Carc. lar.	Ext. lar. ligation vena. jugular and art. carotidis.	R.	D. 1m. o.	Tretze, Deutsche Ztschr. f. Chir., 1891, xxxii.
Fisher	1889	F	57	Carc. lar.		D. 11d.		Tretze, Deutsche Ztschr. f. Chir., 1891, xxxii.
Obalinski	1889	M	50	Carc. lar.		R.	R. 1yr.	Pienjazek, Deutsche Ztschr. f. Chir., xxxvi, 1893.
Copanotto	1889	F	57	Carc. lar.		R.	R. 2yrs.	Gaz. Med., 1892.
Dela Sota Tastra	1889	M		Epith. lar.		D. cardiac failure 14d.		Rev. de med. cirurg. pract., 1893, xxxii.
Demon	1890	M		Carc. lar.		D. few hours.		Jr. de Med. Bordeaux, 1890.
Fowler	1890	M	56	Carc. lar.		R.	D. (?) recur. 4m.	Annual Rep. Meth. Epise. Hosp., Brooklyn, 1890.
Perier	1890	M	66	Carc. lar.		D. few hours.		Jr. de Med. Bordeaux, 1890.
Kocher	1890	M	71	Carc. lar.		R.	R. 6m.	Arch. Klin. Chir., xliv, 1892.
Kocher	1890	M	31	Carc. lar.		R.	D. (?) recur. 6m.	Arch. Klin. Chir., xliv, 1892.
Bull	1890	M	50	Carc. lar.		D. pneum. 4d. p. op.		Rec. N. Y. Hosp., 1890.
Kocher	1890	M	58	Carc. lar. tongue.	Exc. tongue, hyoid phar. thyr. cart.	R.	D. (?) recur.	Schumacher.
Kocher	1890	M	57	Tub. lar.	Exc. lar. except ½ cric. cart.	R.	D. tub. pulm.	Schumacher.
Graf	1890	F	45	Carc. lar.		R.	R. 6¼yrs.	Arch. Klin. Chir., 1897, lv, 399.
Graf	1890	M	66	Carc. lar.	Exc. lar. and trach. ring.	R.	D. (?) recur. in trach.	Arch. Klin. Chir., 1897, lv, 399.
Graf	1890	M	59	Carc. lar.		D. bronch.		Arch. Klin. Chir., 1897, lv, 399.
Graf	1890	M	53	Carc. lar.		D. mediastintis.		Arch. Klin. Chir., 1897, lv, 399.
Graf	1890	M	35	Carc. lar.	Exc. lar. oesoph.	R.	D. recur. 1yr.	Arch. Klin. Chir., 1897, lv, 399.
Gluck	1890	M	60	Carc. lar.		D. pneum. 11d.		Berl. Klin. Wshr., 1897, ii, 985.
Chien	1890	M	44	Epith. lar.	Prel. trach.	R.	R.	Edin. M. Jr., 1890, xxxvi, 833.
Cisneros	1890	M	46	Epith. lar.		R.	D. recur.	Rev. clin. de la hosp., Madr., 1890.
Perrier	1890	M	66	Carc. lar.		D.		Manuel operatoire de la laryngotomie, Paris, 1894, G. Steinthal.
Duret	1890			Carc. lar.	Food entered bronchi.	D. pneum.		J. d sc. de med. Lille, 1898, ii, 73.

Lande	1890	M	48	Carc. lar.	1st thyrotomy exc. lar. part. trach. and phar.	R.	D. recur. 7½m.	Moure, Rev. de laryng., No. 21, 1891.
Trendelenburg .	1890	F		Carc. lar.		R.	R. 7m.	Deut. Med. Wschr., xl, 1889, 1138.
McLeod	1891	M	28	Carc. lar.	Exc. lar. and glands.	R.	R. 47d.	Ind. Med. Gaz., 1891.
Hochenegg	1891	M	51	Carc. lar.		R.	R. 5m.	Wien Klin. Wshr., v, 1892.
Wolf	1891	M	41	Carc. lar.		R.	R. 8m.	Berl. Klin. Wshr., xxi, 1892.
Cohen	1891	M	41	Adeno-car.		R.	R. 2yrs.	N. Y. Med. Jr., lvi, 1894.
Moyer	1891	M	65	Osseous mass.	Prel. trach.	R.	R.	N. Y. Med. Jr., 1891, liii, 165.
Roser	1891	F	53	Carc. lar.	Partial resection then total exc. lar. and part. phar.	R.	D. 11m.	
Gerstein	1891	M	70	Carc. lar.		D. pneum. 8d.		Hansberg's Statistics.
Obalinski	1891	M	70	Carc. lar.		R. not heard from.		Praniazek, Deutsche Ztschr. f. Chir., 1893.
Vinci	1891	F		Carc. lar. phar.	Exc. lar. part. phar.	D. few hours pneum.		Hansberg's Statistics.
Bond	1892	M	46	Myxo-chon.		R.	R. 7m.	Lancet, i, 1893.
Jaennel	1892	M	63	Chronic lar.		R.	R. 2m.	Arch. prov d. Chir., vii, 1893.
Abbe	1892	M	65	Carc. lar.		R.	D. recur. 3m.	Rec. St. Luke's Hosp., N. Y., 1892.
Graf	1892	M	63	Carc. lar.		R.	D.	Arch. Klin. Chir., 1897, lv, 399.
Wolff	1892	M	41	Carc. lar.		R.	R. 7½m.	Berl. Klin. Wshr., 1892, xxxiii.
Toti	1892			Carc. lar.		D. heart failure 56hrs.		Deutsche Med. Wshr., 1892, No. 4.
Poffert	1892	F	68	Carc. lar.		R.	R. 11m.	Deutsche Med. Wshr., No. 3-5, 1893.
Crile	1892	M	60	Carc. lar.	Prel. trach.	R.	D. 2½m.	Private Records.
Crile	1893	M		Tub. lar. (?)	Prel. trach.	R.	D. 8m.	Private Records.
Crile	1893	M	56	Carc. lar.		R.	D. recur. 3½m.	Cleve. Med. Gaz., viii, 1893.
Terrier	1892	M	50	Carc. lar.		R.	D. recur. 5m.	Bul. & Mem. Soc. Chir., Paris, 1890.
Gerster	1893	M	42	Carc. lar.		D. heart failure 11d. p. op.		Rec. Mt. — Hosp., N. Y., 1893.
Hubbard	1893	M		Carc. lar.		R.	R. 2m.	Tr. N. Y. Acad. Med., 1894.
Carmalt	1893	M	43		Trach. 2wks. prev. Exc. lar. and trach. rings.	R.	R. 4m.	Tr. Am. Surg. Assn., 1894, xii, 267.
Graf	1893	M	58	Carc. lar.		R.	D. recur. 5m.	Arch. Klin. Chir., 1897, lv, 399.
Graf	1893	M	49	Carc. lar.		D. Sepsis.		Arch. Klin. Chir., 1897, lv, 399.
MacDonald	1893	M	39	Myxosarc.	Trach. 10d. prev.	R.	R.	Brit. M. J., 1893, 1423.
Cohen, J. S.....	1893	M	47	Adenosarc.	Exc. lar. trach. ring.	R.	R.	Jr. Am. Med. Assn., 1893, xxi, 834.
Perrier	1893	M	62	Epith. lar.	2 recur. for which operated.	R.	R.	Manuel operatone de la laryngotomie, Paris, 1894, G. Steinthal.

Operator.	Year.	Sex.	Age.	Diagnosis.	Notes.	Operative Result.	Ultimate Result.	References.
Perrier	1893	F	56	Carc. lar.		D. 5d. p. op.		Manuel operatone de la laryngotomie, Paris, 1894, G. Steinthal.
Pique	1893	M	52	Epith. lar.		R.	R.	Manuel operatone de la laryngotomie, Paris, 1894, G. Steinthal.
Pique	1893	M	24	Carc. lar.		R.	R.	Manuel operatone de la laryngotomie, Paris, 1894, G. Steinthal.
Perrier	1893	M	57	Carc. lar.		D. 7d.		Manuel operatone de la laryngotomie, Paris, 1894, G. Steinthal.
Ward	1893	M	65	Epith. lar.	Exc. lar. tr. rings, part. phar.	R.	R.	Trans. Chir. Soc. lond, 1896, xxix.
Cheval	1893	M	60	Epith. lar.		D. pneum.		
Hensel	1893	M	55	Carc. lar.		R.	R.	Pest Med. Press, 1893, 1113.
Jeannel	1893	M	45	Epith. lar.	Ext. by Perrier's method.	R.		Aut. Med. de Toulouse, 15 June, 1895.
Mannowry	1894	M	38	Carc. lar.	Ext. by Perrier's method.	R.	(?)	Soc. de Chir., 1894, 26 Dec.
Pean	1894	M	50	Carc. lar.	Exc. lar. part. phar. oesoph.	R.	R.	Acad. de Med., 1895, 22 Jan.
Crile	1894	M	32	Carc. lar.	Prel. trach.	R.	D. 16½m.	Private Records.
Crile	1894	M	35	Carc. lar.		R.	R. 4½yrs.	Private Records.
Graf	1894	M	31	Carc. lar.		R.	R.	Arch. Klin. Chir., 1897, lv, 879.
Graf	1894	M	55	Carc. lar.		R.	D. recur. 16m.	Arch. Klin. Chir., 1897, lv, 879.
Mackay	1894	M	44	Sarc. lar.	Trach. 7d. prev. Exc. lar. part oesoph. and epiglottis.	R.	R.	Lancet, 1894, i, 933.
Swain	1894	M	42	Carc. lar.	Trach. 13d. prev.	R.	R.	N. Y. Med. Rec., 1894, lx, 449.
Rotter	1894	M	72	Carc. lar.		R.	R.	Berl. Klin. Wshr., 1895, i, 121.
Mikulicz	1894	M	44	Carc. lar.		R.		Beitr. z. Klin. Chir., 1896, xvii, 47.
Graf	1895	M	72	Carc. lar.		R.	D. apoplexy.	Arch. Klin. Chir., 1897, lv, 879.
Thompson	1895	M	35	Sarc. lar.		R.	R.	Med. News, 1895, lxvii, 459.
Cohen	1895	M	48	Papilloma lar.		R.	R.	Brit. M. J., 1895, i, 1000.
Wolff	1895	M		Carc. lar.		R.	R. Mestastases in lungs and femur few years after.	Berl. Klin. Wshr., 1895.
Gluck	1895	M	49	Carc. lar.		R.	D. tub. pulm. 5½yrs.	Berl. Klin. Wshr., 1897, ii, 988.
Gluck	1895	M	54	Carc. lar.	Iodoform intoxication	R.	R.	Berl. Klin. Wshr., 1897, ii, 988.

Ward	1895	F	2	Papilloma lar.	Prel. trach. and thyrotomy.	D. collapse 60hrs.		Trans. Chir. Soc. lond. 1896, xxix.
Ward	1895	M	42	Carc. lar.	Exc. lar. part. phar. and glands.	R.	R.	Trans. Chir. Soc. lond. 1896, xxix.
Mikulicz	1895	M	51	Epith. lar.		R.	D. recur. 6m.	Beitr. z. Klin. Chir., 1896, xvii, 47.
Crile	1895	M	33	Carc. lar.		R.	D.	Private Records.

STATISTICS OF DIFFERENT WRITERS

Writer.	No. of Cases.	Percentage of Deaths.	Reference.
Wasserman	143(?)	60.96%	Deutsche Ztschr. f. Chir., 1889.
Scheier	67	43	Deutsche Med. Woch., 1888.
Maydl	92	40	
Baratoux	106	52.8	Le Progress Medicale, 1888.
Salamini	104	43.6	Cited by Tauber.
Krajewski	127	44.9	Cited by Tauber.
Jacobson	71	40	Operations of Surgery, 1889.
Tauber	163	41.1	Langb. Arch., xli.
Krause	160	36	Allg. Wien Med. Ztg.
Powers and White	48	35	N. Y. Med. Rec., 1895.
Hansberger	30	20	Arch. Laryng. & Rhin., 1896, V.

STATISTICS

	1866 to 1876	1876 to 1886	1886 to 1896	1896 to 1901
Number of operations	15	125	170	82
Operative deaths	7	48	46	6
Ultimate cures	2	26	58	21
Percentage of operative deaths	46.67%	38.4%	27.88%	18.75%
Percentage of ultimate cures	13.33%	20.8%	34.11%	65.65%
Operations for carcinoma	12	108	156	30
Ultimate cures in carcinoma	1	21	49	20
Percentage of ultimate cures in carcinoma	8.33%	19.44%	28.82%	66.67%

Total number of cases 342

Operator.	Year.	Sex.	Age.	Diagnosis.	Notes.	Operative Result.	Ultimate Result.	References.
Perrier	1893	F	56	Carc. lar.		D. 5d. p. op.		Manuel operatone de la laryngotomie, Paris, 1894, G. Steinthal.
Pique	1893	M	52	Epith. lar.		R.	R.	Manuel operatone de la laryngotomie, Paris, 1894, G. Steinthal.
Pique	1893	M	24	Carc. lar.		R.	R.	Manuel operatone de la laryngotomie, Paris, 1894, G. Steinthal.
Perrier	1893	M	57	Carc. lar.		D. 7d.		Manuel operatone de la laryngotomie, Paris, 1894, G. Steinthal.
Ward	1893	M	65	Epith. lar.	Exc. lar. tr. rings, part. phar.	R.	R.	Trans. Chir. Soc. lond, 1896, xxix.
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Graf	1894	M	55	Carc. lar.		R.	D. recur. 16m.	Arch. Klin. Chir., 1897, lv, 379.
Mackay	1894	M	44	Sarc. lar.	Trach. 7d. prev. Exc. lar. part oesoph. and epiglottis.	R.	R.	Lancet, 1894, i, 933.
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Percentage of ultimate cures in carcinoma	8.33%	19.44%	28.82%	66.67%

Total number of cases 342

A New Method for the Removal of Hemorrhoids Under Local Anesthesia*

BY THOS. CHAS. MARTIN, PH. D., M. D., CLEVELAND

Proctologist to the Cleveland General Hospital, Professor of Proctology in the Cleveland College of Physicians and Surgeons, Fellow of the American Proctologic Society, etc.

The victim of hemorrhoids often prefers to bear those ills he has than fly to that relatively desperate refuge afforded by general anesthesia and be relieved. As a consequence he becomes a crank or an invalid. He receives little sympathy and less help.

The nonmalignant anal growths may be removed painlessly without resort to general anesthesia by means of the technic presently to be described, provided it be performed by the trained hands of an operator who thoroughly understands the principles of infiltration-anesthesia, and who, furthermore, has been sufficiently persevering to master the difficulties encountered in the application of these principles to this operation.

The clamp, Fig. 1, consists of a hollow cone 3¼ inches in length and ¾ of an inch in diameter at its distal extremity, and 1¾ inches in diameter at its proximal end. One quadrant of the cone is fenestrated, Fig. 2. This is occupied by a movable blade with a serrated edge, which makes contact with the cone's serrated edge. The movable blade is sheathed in the cone when the jaws of the clamp are separated. Hence, after the instrument is introduced it may be made to receive the pile without irregularly expanding the anus. The great essential to painless manipulation of the sphincter is the even distribution of pressure throughout its circumference.

*The operation which is the subject of this paper is described at greater length in Hemmeter's book on Diseases of the Intestines, now in the press of P. Blakiston's Son & Co. The instrument essential to this new operation has been pictured previously in the *Bulletin of the Cleveland General Hospital*, and in the *American Gynecological and Obstetrical Journal* for October, 1898.

Users of dilating speculums have been confused and baffled by the pain they provoke.

Preparation of the patient consists in daily gradual dilation of the anus by means of Kelly's conic dilator until the anus may be made to open painlessly to the degree necessary for the introduction of the clamp. Those patients who long have been subject to hemorrhoids have a dilated or relaxed sphincter, and therefore do not require this preparatory treatment.

The patient should be placed and made comfortable in the Sims' posture. The table's upright knee-piece should be adjusted to support the patient's legs, and the light focused on the field of operation as shown in the illustration, Fig. 8.

The anoscope, Fig. 6, should now be employed that the precise situation of each hemorrhoid may be determined. These should be noted as occupying certain given zones and quadrants of the anus.

The summit of each tumor should be infiltrated with a 1-10 of 1% solution of eucain. A very fine needle should be employed. The needle should have a long tapering point, thus may its introduction provoke little or no pain, and, thus, too, may the thin wall of a varicose hemorrhoid be infiltrated. Whereas, on the other hand, a needle of larger diameter will enter the tissues less easily and will provoke great pain, and perhaps may be so much thicker than the capsule of the tumor it is designed to anesthetize, that instead of effecting an infiltration of that structure the anesthetic may be driven at once into a blood-space and directly into the circulation.

The now artificially edematous and anesthetized portions of the several tumors should be grasped with curved hemostats and the anoscope withdrawn. It will then be noticed that the tumors are somewhat prolapsed under the weight of the pendant hemostats, and that because of their handles the anoscope can not be drawn off them. They should be detached, withdrawn from the anoscope and

reattached, one by one, thus, in order, each of the prolapsed tumors is to be released and again seized and the anoscope removed from the field of operation.

The attached hemostats should be surrendered to an assistant, who should radiate them from the anus and well out of the way of the operator.

The operator should take the well-lubricated clamp, adjusted as shown in Fig. 1, and introduce it into the anus with its blade pressing against the tumor which first is to be removed. When the instrument is buried to its shoulder the fenestrum should be opened, as shown in Fig. 2. The hemostat which is attached to the tumor within the now exposed field should be used as a lever to drag the hemorrhoid into the clamp's chamber, Fig. 3. The pressure incident to the introduction of the clamp often expresses the eucain from the tumor so that it is necessary to reanesthetize it before subjecting it to such manipulation as is necessary to carry it completely into the clamp. As the pressure of the clamp from this time on obstructs the local circulation, the infiltration should be thorough. Not only must the tumor itself be anesthetized, but its base, also, and the tissues underlying this. If the patient should feel pain at any time during these manipulations, it indicates that the infiltration is incomplete—complete it. The clamp should now be closed and locked, and the growth cut away by means of scissors.

If the character of the growth is such that the operator has reason to fear secondary hemorrhage the wound should be lock-stitched with catgut. If it be of the connective-tissue or fibrous variety the pedicle should be cauterized. The red-hot platinum should be applied for a second only and repeatedly, thus the clamp will not accumulate sufficient heat to distress the patient, and the lymph will be coagulated and fix the vessels.

Tentatively the clamp should be made to release the wound. If there be any bleeding it may be at once controlled by suture or cauterization.

Gently the clamp should be withdrawn and gently reintroduced for the removal of other hemorrhoids if necessary.

This clamp is an aseptic instrument, Figs. 4 and 5. As the tumor is operated on within a sterile metal chamber, the former may be antisepticized, and, therefore, the field of operation may be rendered surgically correct. Insufflation of iodoform or other antiseptic powder upon the wound fortifies it in a measure against subsequent infection.

Because of its peculiar form this clamp effectually blocks the field of operation against the accidental invasion of feces or the remnant of an enema. There can occur no hemorrhage to inundate and obscure the field. The pile is dry-docked.

This clamp demands that the wound shall be linear in form and parallel with the axis of the anus; it dilates the anus to a degree greater than its normal excursion, hence there will be no subsequent contraction and stricture as a result of this operation.

That this method of clamp operation is inapplicable to inflamed or thrombotic piles is obvious.

Eucain is much less toxic than cocain. Eucain may be sterilized by boiling without affecting its anesthetic property. An ounce or more of a 1-10 of 1% solution may be used without danger, for on the removal of the tumor most of the eucain is recovered. If the eucain be prepared in normal salt-solution its injection will not be followed by smarting and burning.

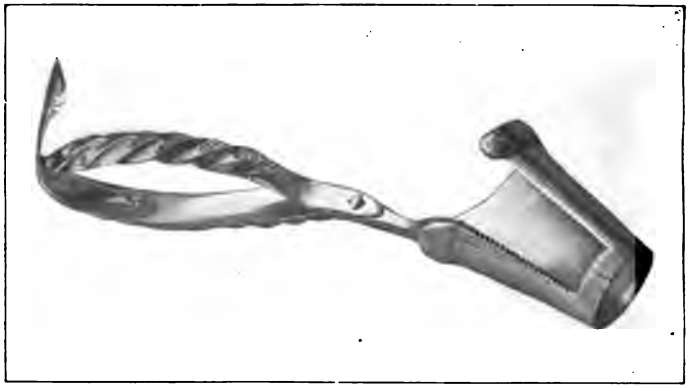
Local anesthesia is a surgical refinement; skill in effecting it may be acquired only by the exercise of patience and practice.

DISCUSSION

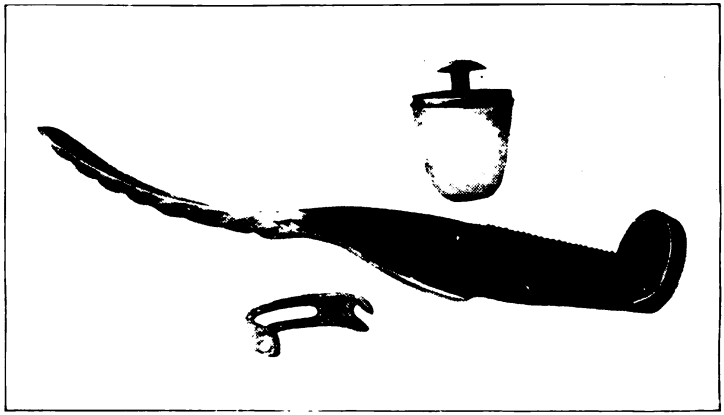
Dr Lester Kellar, Ironton: It seems to me that this paper is a timely one, and a good one too. I have not had the opportunity of examining the doctor's instrument sufficiently as yet to be familiar with it, but his description seems to me to be clear and the technic all right. This it seems to me opens up a field that we are sometimes denied entering, on account of general anesthesia. I wish that I were able to discuss this paper as I would like to do.

THE POSITION OF THE PATIENT.

MARTIN'S CLAMP CLOSED.



PARTS OF THE CLAMP.



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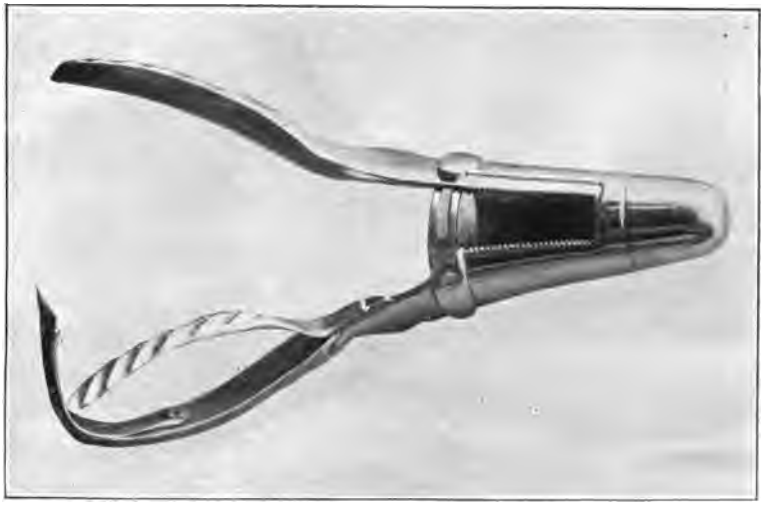
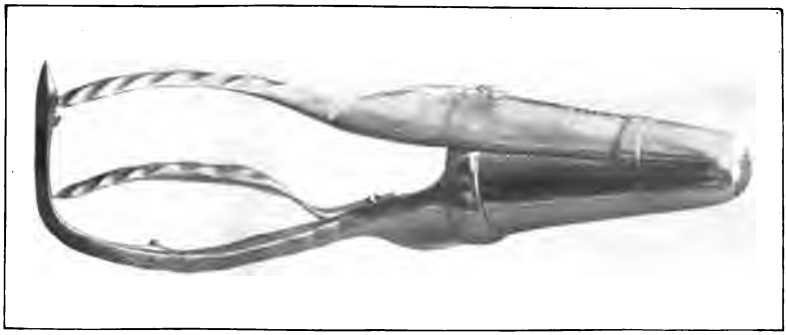


THE CLAMP OPENED.



THE CLAMP CLOSED.

MARTIN'S PROCTOSCOPE.

ITS OBTURATOR.

MARTIN'S ANOSCOPE.

Cystic Adenoma of the Pancreas—Extirpation

BY JOSEPH RANSOHOFF, M. D., F. R. C. S., CINCINNATI
Professor Anatomy and Clinical Surgery, Medical College of Ohio, University of Cincinnati

Cysts of the pancreas are among the rare conditions that come under the care of the surgeon. Körte,[1] in 1898, was enabled to gather only 121 cases that had come under operative treatment. Bassel Hagen,[2] in a paper read before the German Surgical Congress in 1900, had added 28 cases. I have since collected, three cases by Polland,[3] one each by Starck,[4] Richardson[5] (Fitz), Deaver,[6] Fiske[7] and Morton.[8] Including the two herewith submitted there is a total of 159 cases subjected to operation. In an experience of nearly 25 years, the writer has seen but two cases. The first nearly 12 years ago, with Doctor Carson, was that of:

Case I, J. D., machinist, aged 48. He had always been well until two months before he came under observation, when he had developed severe pains in the upper part of the abdomen, distinctly colicky in character, and very strongly indicating gallstone attacks. The pain was experienced in the epigastrium and under the right shoulder-blade. The attacks supervened as often as three or four times a week. and very frequently necessitated hypodermic injection. The attacks supervened as often as three or four times a week. Although there never was any icterus, the diagnosis of gallstones was made, and an exploratory incision advised. This was declined. While under observation, there developed a tumor in the epigastrium projecting from the middle line

1. Körte—Pancreas, *Deutsch. Chir. Lief.* 45 d. S. 88.
2. *Arch. f. klin. Chir.* Vol. 62, p. 157.
3. Pollard—*Brit. Med. Jour.* 1899, Mch 11.
4. Starck—*Beit. zur kl. Chir.* 1901, p. 713.
5. Richardson-Fitz.—*Amer. Journal Med. Sc.* Aug. 1900.
6. Deaver—*Annals Surg.* Vol. 32, p. 708.
7. Fiske—*Annals Surg.* Vol 32, p. 728.
8. Morton—*Annals Surg.* Vol. 29, p. 760.

to the left border of the costal arches. When first discovered by the patient, it was larger than a fetal head, distinctly globular and fluctuating. It reached the abdominal wall between the lower border and the lesser curvature of stomach. The size of the tumor as observed during five or six weeks seemed to fluctuate, although it never disappeared entirely. By aspiration, six ounces of fluid were removed which had the digestive reaction of albumin and starch. The diagnosis of pancreatic cyst was then made. An operation was made by a surgeon in New York, January 8, 1890. He sewed the tumor to the anterior abdominal wall, but none of the cyst wall, which was very thin, was removed. Under drainage the cyst gradually contracted, but for over a year a slight fistula remained. I learned subsequently that upon closure of the fistula the patient again suffered from attacks of pain, but he passed from under observation of the writer.

Case II. Margaret R., age 38 years, born in Ireland, was admitted to the Good Samaritan Hospital October 8, 1900. Her father died at 50 of cancer of stomach, her mother is living and well. The patient had five brothers and seven sisters. Two brothers and three sisters died of tuberculosis, one sister at present is afflicted with it. The patient had many diseases of childhood, but nothing of a tubercular nature. Previous to the present trouble she had not suffered from abdominal symptoms. She was not constipated, and does not remember having been jaundiced. There was no history of urinary disturbance, and her menstrual history was normal. She was married at the age of thirty, but has never borne a child.

Present illness. The patient is unable to tell exactly when she first noticed a growth in her abdomen. She attributed her trouble to an injury received from a fall fourteen years ago. She fell on a doorsill, striking her right side between the sixth and tenth ribs; she at the same time lacerated her tongue, which resulted in a scar still visible. From the day of this fall she had either pain or discomfort

in that region. Vomiting has been the feature of her trouble ever since. It was, however, by far less frequent during the first years than it has been for the last five or six. She can give no information as to the time between her meals and vomiting. She has never vomited blood. Six years ago she noticed a swelling in the abdomen; she thinks it was a little over the right side, and just under the ribs. She is not certain that it was not central. From that time until today

No. 1. Section of the cyst wall near the pancreas. X 205.

the swelling has been growing gradually. With it vomiting has increased to such an extent that whenever she eats more than eight ounces, it brings on an attack of vomiting. Notwithstanding this, she has lost little or no weight.

Present condition. The patient is well nourished, of healthy color, the temperature and pulse are normal, and the viscera of the chest are normal. The tongue is furred, and the breath rather impure. The abdomen is distended to the extent of about the eighth month of pregnancy or more.

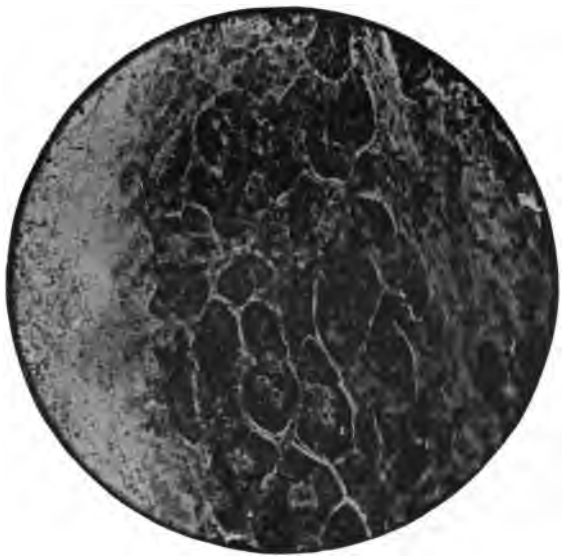
The enlargement is altogether in the subcostal zone. The measurement from the ensiform cartilage to the umbilicus is twice that from the umbilicus to the symphysis. A tumor larger than an adult head and shaped like a foot-ball can easily be mapped out in this area. It is almost central and anchored to the posterior abdominal wall. It extends from the xyphoid cartilage to one inch below the umbilicus. The tumor is very hard, ovoid in shape, of smooth surface, and distinctly fluctuating. While over the central portions of the growth the percussion note is distinctly flat, there is a tympanitic resonance about the area of dulness. The abdominal wall can be moved over the surface of the tumor. Below, the hand can be passed under it, but little or no motion can be imparted to the growth. Change of position does not influence the position of the tumor.

Vaginal examination. The uterus is normal in size and position, and in no way connected with the growth. Movement of the uterus does not influence the growth. Nothing abnormal is felt on the part of the ovaries. Rectal examination is likewise negative. Urinalysis shows the average total amount in twenty-four hours to be 1,700 c. c., reaction acid, specific gravity 1.015, no albumin, no sugar, no casts or bile. The pulse and temperature range are normal.

During the observation lasting one week, the diagnosis in this case rested between a cystic tumor of the pancreas and a large cyst of the mesentery. While from the size of the tumor some connection with a pelvic viscus might be suspected, the position of the growth in the upper abdominal zone made it reasonably certain that such connection did not exist. The size of the tumor, however, with its fixedness above, and the normal condition of the pelvic organs made it certain that we had to deal with either a tumor of the pancreas or a large cyst of the mesentery or of the omentum. Diagnosis was made almost certain when by gastric and colonic inflation, the tumor was found to project against the anterior abdominal wall with gastric and colonic

resonance encircling it from above and below. Furthermore the cysts of the omentum rarely attain such size, are often movable within a narrow range, and are of more rapid development.

Operation Friday, October 12, 1900. Incision from xyphoid cartilage to umbilicus through thick abdominal wall. On retracting the margins of the wound there was exposed a large cyst of pearly appearance underneath a



No. 2. Portion of the cyst wall. X 205.

glistening peritoneal covering. On inspection the stomach was seen above, the transverse colon with the mesentery in front and below the growth. In the gastrocolic ligament, which was spread out over the tumor, many veins from the size of a broom-straw to that of a quill were seen. The great omentum was next drawn into the wound to determine whether by division of the lower layer of the mesocolon the tumor could be gotten at. When this was found impracticable, the omentum was returned into the cavity and held

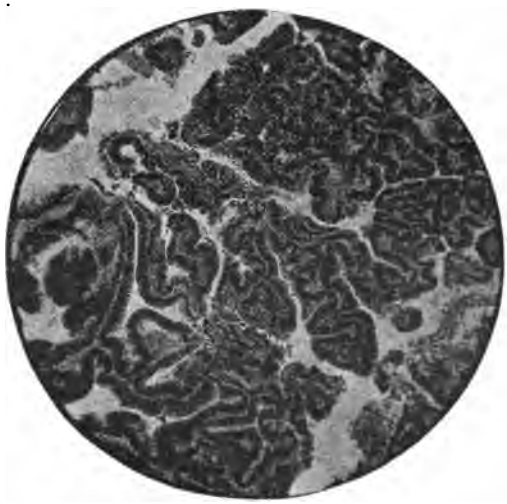
in place by gauze packing. The gastrocolic omentum was next divided for the distance of seven inches along the greater curvature of the stomach, after a large number of ligatures had been applied to the veins above mentioned. The tumor was thus exposed between the stomach and colon. On puncture with a large trocar three quarts of chocolate-colored grumous material were removed. The cyst was then gradually drawn into the wound from between the stomach and colon, adhesions being very carefully spread and tied off as required. As the cyst-wall was gradually drawn out its pancreatic origin was made certain, for on its surface there was displayed a very large number of flattened lobules of the gland-structure proper. It is impossible to state how much of the pancreas was removed with the cyst-wall. When most of the cyst had been drawn into the wound it was found that the removal of the entire thickness of the cyst wall might endanger the splenic vein. For this reason a pedicle was made of the pancreatic tissue about the sac, and fixed above the central part of the incision. To prevent hemorrhage a clamp was placed under the pedicle in addition to the usual Staffordshire ligatures. Before the stump was fixed in the abdominal wound the relations between the colon and greater curvature of the stomach were restored by a continuous suture along the line of incision made through the gastrocolic ligament. What little of the sac was left in the stump was destroyed with the thermocautery. The abdomen was closed in the usual manner. The time of operation was one hour.

Subsequent history. During the first 48 hours symptoms were somewhat stormy, chiefly on account of vomiting which lasted during nearly all of 48 hours. The pulse-rate ran up to 120 on the first and second day, from that time on it reduced in frequency and gradually returned to the normal. The highest temperature reached was 101½° on the third day. The forceps were removed on October 15. The wound healed except for slight venous oozing from the stump. Eschar left by the thermocautery came away on the

fifth day, when it was observed that the stump had already greatly contracted and retracted deeply into the abdominal wall. In three weeks it had cicatrized over entirely, and the patient left the hospital just four weeks after the operation.

Report of the specimen by Doctor Hiller:

The tumor consists of a thin, tough sac, which is of a grayish slate-color on the outside. The surface is smooth and glistening, and has ramifying on it numerous small



No. 8. The adenomatous tissue with papillary structure. X 72.

vessels and large veins, one of which is at least one cm. in width. Here and there the surface is mottled with reddish-brown, due to hemorrhage into the wall. The sac varies in thickness from two to eight m. m., being thickest in the most anterior portion. At one portion of the wall a piece of pancreas is intimately incorporated with it. The inside of the sac presents here and there irregularities which are made up of a soft substance that readily breaks under the finger. The sac was distended with a thick mucilaginous chocolate-colored fluid, that contained masses of the same soft sub-

stance that grows from the inside of the sac. An exact measurement of the fluid was not made, since it escaped during the operation. It was absolutely neutral in reaction, and contained much mucin, with some granular pigment and epithelial debris. The presence of active digestive substances could not be demonstrated. The microscope shows the wall to be made up of fibrous tissue that contains no glandular elements, but where it is incorporated with the pancreas presents the normal pancreatic-gland tubes in abundance.

These are most numerous near the innermost portion of the wall. The individual glands are separated by bundles of fibrous tissue of considerable width. Blood-vessels are not numerous. The softer masses on the inner portion of the wall are made up of glandular tissue with hardly any connective tissue frame-work. The glandular tissue is of two kinds, one of most irregular gland-formation, and the other of distinct papillæ. The epithelium usually is in a single layer of columnar cells, but at places there exist several layers. Multiple layers are found over some papillæ and in large extatic tubules. Nowhere does there appear to be any infiltration of connective tissue with epithelium. Some papillæ have been the site of hemorrhages, as they seem to be made up of a mass of blood held in place by the intact basement-membrane with its epithelium.

The diagnosis of cyst of the pancreas ordinarily offers no difficulties. The location in the upper zone of the abdomen, the relations to the stomach and the transverse colon, and the fixedness of the tumor are in most cases sufficient to indicate its origin. In very rare cases, as are reported by Israel,[1] Zeller,[2] and Keitler,[3] the tumor is very movable. In very large growths reaching toward the pelvis an ovarian tumor might be suspected. Such was the condi-

1. Israel—*Centralbl. f. Chir.* 1900, p. 142.
2. Zeller—Quoted by Bessel Hagen.
3. Keitler—*Wien Wochenschr.* 1900, No. 29.

tion of Bozeman's[1] case, which was the first successful one of extirpation of a pancreatic cyst. The symptoms which belong to exclusion of the pancreatic secretions from the intestines have not been noted in most cases. In neither of the above-recorded cases was there either fat-diarrhea or glycosuria. These symptoms are to be expected only, according to the more recent investigations of Minkowski and Mehring,[2] when great or almost total destruction of pancreatic tissue has taken place. The symptoms are of more value therefore in acute cases of pancreas necrosis.

The local symptoms depend largely on the site of the tumor. Pain from the pressure on the celiac plexus, icterus from involvement of the common bile-duct, and frequent vomiting from pressure on the stomach are among the chief local symptoms. In the acutely developing cases there is usually observed great loss of strength, which has not as yet been successfully accounted for, considering that the pancreas still maintains its various digestive functions. The second case reported was one of cyst-adenoma. Körte states that only thirteen cases of this kind had hitherto been reported up to 1898. A case reported by Starcke, one of multilocular cyst-adenoma by Fritz, another by Keitler, and the one today presented makes altogether seventeen cases. It is likely that the proportion of true cyst-adenomaş to the total number of pancreatic cysts is greater than would be inferred from these figures. The fact that most operators have contented themselves with sewing the cyst-wall into the abdominal wound and not resecting a portion for microscopic examination, might explain the comparative rarity of cyst-adenomas of the pancreas. The diagnosis between hemorrhagic cysts, retention-cysts, and cyst-adenomas can usually be at least inferred by the very slow growth which characterizes the last-named variety. Furthermore with the slow growth there is ordinarily less pain than in the other

1. *N. Y. Med. Record*, 1892, 21, p. 49.
2. *Centralbl. f. klin. Med.* 1889, No. 8.

forms of pancreatic cysts. While the diagnosis of pancreatic cysts might be furthered by aspiration, such puncture in the judgment of the writer should not be made, particularly since the pancreas ferments are often absent in true pancreatic cysts, and the negative result obtained from puncture might therefore be misleading.

Cysts of the pancreas can only be relieved by surgical operation. The method to be adopted will of necessity depend upon the character of the cyst and its relations to contiguous parts.

In the great majority of cases in which the cyst is not a true cyst with an independent wall, but only made up of adventitious membrane or of the walls of the *bursa omentalis*, excision will be out of the question. For this reason in all but 34 of the 159 cases operated on, the cyst-wall was sewed into the abdominal wound and drained. The death-rate has been remarkably low, only five deaths being recorded. In 23 cases total enucleation of the cyst was made, with only two deaths. In twelve cases the operation could not be completed; and, as in all incomplete operations, the death-rate was relatively high, four out of the twelve having succumbed. Although total extirpation when successful naturally offers the surest and quickest method to speedy recovery, its difficulties are of necessity much greater. Whenever feasible it should be adopted, since when an incision and drainage are done there is a marked tendency towards recurrence or towards the continuance, often for many months and frequently for years, of a very harassing fistula. Even in the true cyst-adenomas drainage is often followed by long-continued fistula.[1] That a removal of a considerable portion of normal pancreas tissue contained within the sac-wall is not detrimental to conditions of good health, has been established to the writer by the last case reported.

1. Von Braokel—*Deutsch. Zeitschr. f. Chir.* Vol. 49, p. 298.

CHAPTER V—GYNECOLOGY

REPORT OF A CASE OF PORRO-CESAREAN SECTION FOR PLACENTA PREVIA CENTRALIS

BY WM. J. GILLETTE, M. D., TOLEDO

Professor of Abdominal Surgery and Gynecology, Toledo Medical College; Surgeon to Robinwood Hospital, Toledo

A report of the following case of Porro-Cesarean section for *placenta previa centralis* I think of sufficient interest to present to this society by reason of the bearing it may have on the question whether or not Cesarean section constitutes a justifiable new departure in the treatment of those cases of which Lusk says: "The prognosis of placenta previa is necessarily extremely unfavorable. As many as one mother in four dies during or shortly after delivery. Including deaths from puerperal processes Müller estimates the total mortality as not less than from 36-40%. Nearly two out of three of the children are born dead. More than one-half of those born living, die within the first ten days." Simpson says: "All obstetric authorities seem to agree on this point, that there is no one complication in midwifery attended with more anxiety to the practitioner, and few, if any, with more real danger to the patient, than cases of unavoidable hemorrhage from presentation of the placenta."

My case is as follows: Mrs. K., aged 40, American, father dead of Bright's disease, mother, one brother and one sister dead of tuberculosis; married twice, by first husband had four children. Last marriage eight years since, and this the first pregnancy as a result of it. Her labors had always been normal and very easy. During the first three months

of present pregnancy suffered pain and much of the time was not able to be about. During the first two months had occasional discharges of blood, for which she could not account. Did not suspect herself pregnant. After this there was no more bleeding until the fifth month, when it again appeared, accompanied by pain. This bleeding was not very profuse, and her physician was able to control it by keeping her in bed, and giving such remedies as are usual for hemorrhage. From this time on the patient could not be about, not only on account of the hemorrhage but the pain, which was unbearable when she stood on her feet.

The first hemorrhage that created alarm was a week before Christmas, but was controlled as the others had been. Two weeks thereafter it again occurred, and so severe that her physician, Dr Lamona Shuey, called in consultation Dr W. W. Grube. The nature of the trouble was recognized, and the induction of labor discussed, but it was finally decided to wait. On Wednesday preceding her last hemorrhage which proved so nearly fatal another occurred, but was controlled as before, and interference not thought best. Following this there were repeated small hemorrhages, but nothing that created further alarm till the evening of January 26, 1901, when I was hastily called by phone to assist Drs Shuey and Grube. The patient was said to be bleeding furiously and in great danger. I went at once and found the doctors much alarmed over her condition. When I reached them the bleeding, however, had stopped. Tampons had been used to control it, but in spite of them the bed was soaked with blood, and the patient blanched white as marble from its loss; her pulse was weak and from 130 to 140. The room had as much the appearance of a slaughter-house as anything else.

Curiously enough, at the meeting just prior, of our Lucas County Medical Society, the matter of the treatment of placenta previa was discussed, and I had then mentioned that Cesarean section, in my opinion, was a justifiable

procedure in some of these cases. To this Dr Grube, among others, took violent exception, and was probably as pronounced as any one present in his condemnation of the operation, designating it as a very unnecessary mutilation; but now he was in the presence of "a condition and not a theory;" two lives depended on him for their preservation; and he felt keenly (conscientious man that he is) his responsibility. He could not attack by any of the old methods with any prospect of success, for the os was dilated little larger than a ten-cent piece, and every attempt at forcible dilation was accompanied by hemorrhage; and tampons could not be packed tightly enough, even with all the doctor's skill, to prevent blood escaping.

To the question from both physicians, "What shall we do?" I, with a good deal of hesitancy, having in mind Dr Grube's very recent opposition to this operation, suggested Cesarean section as an only hope; for, in the condition of the patient, without any doubt the next hemorrhage would prove fatal; she could not lose more blood and live; and to dilate forcibly the cervix, bore through the placenta, turn the child and deliver, would be impossible without such further hemorrhage; and I for one had not the heart to attempt it.

To my surprise, a ready assent was given, not only by Dr Shuey and the friends, but by Dr Grube as well.

An ambulance was called, the patient wrapped up, placed in it and taken to Robinwood Hospital, only a few blocks distant. At 12:30 a. m., after a hasty preparation, in the presence of a number of invited physicians, Drs W. A. Dickey, Bernhard Becker, J. H. Shuey, Lamona Shuey and others, I operated. Fortunately, in the meantime no further hemorrhage had taken place. When the patient was brought to the table the pulse was very rapid, about 130. No examination of the fetal heart was made. Dr Grube gave the anesthetic, ether, and Dr Green assisted me. The abdomen was hastily prepared by shaving, washing with green soap and water, then a solution of potassium perman-

ganate, followed by a solution of oxalic acid, and finally washing with mercury bichlorid 1/1000, and then alcohol. Similar solutions were used for the hands. No vaginal douche was given, and the tampons were not removed for fear of exciting further hemorrhage. The incision was made in the median line, a rubber cord slipped quickly over the fundus of the uterus and around the cervix, and firmly tied. Now for the first time the patient was absolutely safe from further hemorrhage. The abdominal opening was enlarged, the uterus brought outside the abdominal cavity, and an incision made into it, across the top from horn to horn, in the hopes of thus retaining as much blood for the patient as possible, if perchance the uterus could be saved. The child, a seven and a half pound male, evidently near full term, was rapidly delivered, apparently anesthetised. It was placed in the hands of Dr Becker, to whose skill in resuscitating it we no doubt owe its life.

The cord having been cut, attempts were now made to induce the uterus to contract and free the placenta; and though it seemed to make feeble attempts to do so, yet they were feeble indeed, and after waiting as long as was deemed wise, with reluctance I peeled the placenta from its attachments. It could not have been, by any possibility, more centrally placed over the cervix.

Suspecting that the constriction of the cervix might have some influence in preventing the desired contractions, after a few minutes I loosened the rubber cord but was compelled to tighten it at once; for as soon as loosened, blood would well up from about the cervix in such quantities, that in the condition of the patient it would soon have proved fatal.

Becoming convinced that the uterus could or would not contract firmly, and I understand it often will not when there has been great loss of blood, I amputated it above the rubber cord, passed two old-fashioned hysterectomy pins through the stump, washed out the abdominal cavity with normal salt-solution, stitched the peritoneum with catgut

around the stump, and closed the abdomen with buried catgut and interrupted silkworm-gut sutures. The time of operation was thirty minutes, nearly ten minutes of this was wasted in attempts to save the uterus. I did not do the more modern operation for hysterectomy, dropping the stump after separately ligating the arteries, for I did not feel that the condition of my patient warranted me in taking the extra time necessary.

The patient was placed in bed with a pulse that had suffered nothing by the operation, and it soon began to mend. No salt-solution was injected subcutaneously, but an enema of one quart was given and repeated in an hour. She had no stimulation at any time, except strychnin sulphate 1/30 grain, just before the anesthetic was started. The patient went straight on to recovery. The stump and rubber cord came away at the end of two weeks, and the opening in the abdominal wall made by them rapidly and firmly healed. The patient returned home at the end of four weeks, when the only evidence of the terrible ordeal through which she had passed, was her extreme pallor from loss of blood, and anemic headaches, intense in character. She had no milk to nurse the child, but though artificially nourished, he has grown well, and is now, at the end of four months, a big healthy lusty baby.

The only other Porro done, to my knowledge, for placenta previa, was by Lawson Tait December 21, 1898, and reported by him in the *Lancet* for February 11, 1899. This article was the last from the pen of this great surgeon before his death.

He believed the operation constituted a new departure in obstetrics, and though it would be condemned by many, yet there were those who would follow him in its performance, and in time the procedure would be recognized as life-saving.

There have been reported in this country, two Cesarean sections (not Porros) for placenta previa, which may be regarded as successful. The first one, by Dr Bernays, of

St. Louis, who saved a mother in 1893. The child died ten hours later. The other was by Dr Francis D. Donahue, of Boston, who recently saved both mother and child. A report of his case was read before the Suffolk District Medical Society, of Massachusetts, and published in the *Boston Medical and Surgical Journal* for December 6, 1900. In the discussion that followed the reading of this paper, Dr Maurice Richardson said, "Taking the evidence that has been presented here tonight, the verdict must be, I think, in favor of Cesarean section, in some cases at least, of placenta previa. Perhaps the evidence is not as yet wholly conclusive, and the question may be regarded as still *sub judice.*" He goes on to say "Every speaker here tonight has referred to the enormous mortality of placenta previa. I am surprised to learn that the best results show a mortality of 12%, and in some cases of 50%. The mortality of Dr Reynold's collection of 93 cases of Cesarean section, his own, Dr Washburn, and others, has been practically nothing. I cannot see then how a verdict can fail to be in favor of a scientific operation—one that permits of exact dissection, *which cannot fail to stop hemorrhage,* which cannot fail to save the child, and in which the mortality, wholly in the cases of the mothers—is vastly less than by older methods."

I have quoted Dr Richardson's remarks at length, for they seemed to me to so accurately state the case as it now stands in favor of operation, by Cesarean section, or Porro-Cesarean section for placenta previa, as to leave little, if anything, to be said.

DISCUSSION

Dr E. Gustav Zinke, Cincinnati: I do not think that a more important subject could have been brought before the society at this meeting. The gentleman who reported the case is certainly to be congratulaed not only upon the courage he displayed, but upon the success he obtained in the case. I well remember when Dr Bernays of St. Louis, Mo., performed Cesarean section in 1893. There was a great hue and cry from many quarters, damning him for

doing this operation for placenta previa. I do not wish to discuss the subject further than to endorse every word the doctor has said. I do not know of a more serious obstetric complication than that of *placenta previa centralis*. This operation does away with all the dangers, and any operator, who is entitled to all this name implies, should not hesitate to resort to this operation when occasion demands it.

If I were to offer anything in the way of criticism it would be upon the manner in which the operator dealt with the cervix. I think there is no easier hysterectomy than that which is made immediately upon Cesarean section. I should in this case have taken out the entire uterus. Still that is only an opinion. Perhaps, had I been in charge of the case I might have pursued the same course.

I heartily endorse the operation under the circumstances.

Dr J. F. Baldwin, Columbus: When I read Dr Donahue's article in the *Boston Medical and Surgical Journal* some time last winter, I was very much impressed with his statistics as to the mortality of placenta previa, and was pleased with the result of the operation which he made in his case. My own results in cases of placenta previa have been nothing like as bad as stated by him. Since his paper was written I have taken pains to inform myself on this subject by inquiry among medical friends having a large obstetric practice, and find that their results, like mine, are nothing like as bad as indicated in the Boston paper. Death of the mother is comparatively a rare occurrence according to the experience of the gentlemen whom I have interrogated. It seems to me, therefore, as suggested by the essayist, that those cases of placenta previa which must be reserved for Cesarean section are like his, those in which the mother is in a desperate condition, the soft parts not dilated or dilatable, and in which an attempt to deliver through the natural passages would be fraught with the utmost risk both to the mother and child. His case, it seems to me, was one in which Cesarean section was undoubtedly indicated. In his case, operating as he did at one or two o'clock in the morning, without time for satisfactory preparation of the patient, with the patient at death's door, the loss of even a dram or two of blood might have turned the scale; and this is a very important thing to consider.

I believe Dr Gillette, in a recent paper, credits me with

having made the first Porro operation in Ohio. That operation was made, like his, at night, but it was made with the poorest possible surroundings, the operation having been done with untrained assistants and in a cellar. The results, however, could not have been better. The doctor was certainly fortunate in saving both the mother and child, especially when operating as he did under such adverse circumstances. He is certainly to be congratulated upon his success, and the patient is also to be congratulated on having been able to secure his services.

Dr Otho Evans, Franklin: I am not a surgeon. I have had some obstetric experience, and it seems to me that the propriety of this operation is one which should be decided by the general practician, and the necessity for it should be determined by all the surroundings in the case. I know very well the experience of one man amounts to nothing, except as part of the observations of the whole. My experience in *placenta previa centralis* is limited to two cases, but I have seen several cases in the hands of others, perhaps a dozen cases in all. I do not think that the average fatality has been to exceed 8%. I know of but one case in an observation extending for a period of about fifty years in which there was a fatal result from central placenta previa. Again, the general practician is not prepared for this operation, and he has to depend upon his own resources. In regard to the Porro operation, the future prospective maternity of the mother is sacrificed. So far as my observation goes in my own practice and that of others, with the one fatal case of which I have spoken, these mothers all have had subsequent pregnancies. My own idea is that if we have positive knowledge of central placenta previa based on earlier hemorrhages, it is the duty of the practician to induce labor and terminate it, and I believe this is ordinarily successful. A short time ago I had a patient who had excessive hemorrhages from the fourth month which I controled by the use of the tampon. At the end of the sixth month hemorrhage recurring, I carefully packed the vagina with gauze which I removed after ten hours, when I dilated the cervix and delivered the child. The mother suffered nothing. From my reading and observation I cannot believe that this operation is a necessity, and I am afraid that the fascination of the knife blinds too often our best judgment. The successful termination of an exceptional case cannot be accepted as forming a rule for general practice; neither should a woman

be robbed of her crowning glory, maternity, except as a dire necessity.

Dr Wm. H. Humiston, Cleveland: I was very much interested in Dr Gillette's report of this very interesting case, and I do not think that there is any room for criticism. Taking the condition of the patient—repeated hemorrhages and a very reduced vitality—I think the Doctor did exactly right, and he not only saved the life of the mother but that of the child. In quite a large obstetric experience extending up to within the past seven or eight years, I met several cases of placenta previa, not so many in my own practice as in consultation, but I have never seen a case in which I felt Cesarean section was necessary. I believe it is possible to so tampon the cervix and the vagina, with your patient in the proper position, and then with a compression bandage placed externally over the vulva to retain the tamponing, that this operation will not be necessary. You can retain your tampon there as long as it is necessary, *i. e.* a sufficient time for the uterus to dilate, and then it is very easy to remove the tampons quickly, go through the placenta, get hold of the child's feet and deliver rapidly. But in the case which Dr Gillette reports I believe no other procedure would have been successful, and it was justifiable as evidenced by the saving of both mother and child.

Dr Rufus B. Hall, Cincinnati: This is an interesting subject, and one which will bear discussion both from the side of the practician and the operator. I agree with the gentleman who has just taken his seat that in the vast majority of instances it will not be necessary to do any operation and that the patient can be safely delivered by the natural methods, and therefore save the danger of an operation. In the case however of Dr Gillette's he gave his patient the only chance she had, and I think any man who has safely pulled his patient through such a desperate condition ought to be congratulated, for it does take courage to operate against such odds as he had in this case. I think every practician and obstetrician will agree with me in the statement that when you have delivered these patients with placenta previa there must necessarily be a larger percentage of mortality than when you are dealing with cases of normal labor. These women are greatly depleted and there is more liability to sepsis. The manipulation in these cases which is necessary, when their strength is so greatly

reduced, is dangerous, and again not a few deaths are not from hemorrhage, but from sepsis. They die within a week or ten days after delivery. I have not practiced obstetrics for a number of years, but I was fortunate in having a large practice of this kind for a number of years, and I have seen in my own practice a few of these cases. I have also seen a number in the practice of other physicians. I can recall five cases of death from sepsis during the first week or ten days after delivery of placenta previa cases. One case died while being delivered by one of the best obstetricians in the county in which I resided. If I was placed in the same position as that narrated by Dr Gillette I would have no hesitation whatever in giving the patient the chance for life that he did.

Dr George H. Colville, Circleville: I would like to speak of one case which occurred in my experience. This case was somewhat similar to the one which was operated upon by Dr Gillette. She was suddenly taken with a profuse, a very profuse, hemorrhage. There had been frequent slight hemorrhages before this occurred, but nothing to arouse suspicion until this very profuse hemorrhage came on, and this saturated the bed and bedding, causing her to be almost pulseless. She lived in the country, and it was quite a distance to a physician. She was bleeding severely, and when I arrived at her home I found that there was no dilation at all of the cervix, nothing more than my little finger would enter the uterus. I used the method described by Dr Humiston of tamponing the cervix and vagina, using a "T"-bandage, and then awaited results. That was about 12 o'clock at night. I remained with the patient, and there was a slight seeping, but very little. I gave her nourishment in the form of hot milk, and stimulated her to the best of my ability. After a while I removed the tampons and found some slight dilation, but as soon as I removed them the hemorrhage returned although I did not keep the tampon out any length of time. During the afternoon of the next day (I kept the tampons in all this time) labor pains came on. The pains were sufficient to warrant something being done. About 6 o'clock that evening I removed the tampons, went in at the side of the placenta and removed the child.

Dr E. Gustav Zinke, Cincinnati: You will pardon me for speaking again on this subject, but the remarks of my distinguished friend, Dr Humiston, should certainly not go

unchallenged. There is no doubt but that many cases of placenta previa can be handled by tamponing in the proper manner, but those are not the cases of *placenta previa centralis*. The maternal mortality, if the truth were fully known, in these cases runs up to nearly 60%; the fetal mortality to nearly 80%. If the patient does survive the delivery of the child and placenta, she goes by way of sepsis. But what of that? All we have to take into consideration is the results that we obtain by the different methods of treatment. If we can save 95 women out of 100 and as many children, when we perform Cesarian section in cases of *placenta previa centralis*, I do not see what other choice we have. You may try your tamponing, it is true; but *placenta previa centralis* is a serious matter, and is fraught by far more danger to the mother and child than Cesarean section as performed at the present day.

Dr Edwin Ricketts, Cincinnati: The emergency in this particular case was promptly met by Dr Gillette as the results prove. There is no doubt but that there are cases of placenta previa which are handled successfully which have been described by previous speakers, but what I want to lay stress upon is the fact that this case was one of *placenta previa centralis*. Dr Gillette has demonstrated to us that every case is a law unto itself, and every operator that goes into these cases with his mind made up that he is going to handle each case in a particular way is going to fall down. In June, 1888, I assisted Lawson Tait in a Porro, and the subject came up then as to the opportunities of Porro for conditions as named in the subject of this paper, and he said that he felt this operation had a great future. No doubt, Mr President and Gentlemen, we are on the verge of a new era in handling these cases, and the percentage of mortality as given by Professor Zinke ought to cause us to pause to consider.

Dr F. F. Lawrence, Columbus: I simply wish to express my appreciation of the paper, and also to emphasize the fact that in a case of *placenta previa centralis* you may, and more likely will have them going nearly to full term before the symptoms of danger appear. You at least do not have so frequent hemorrhages during the period of gestation to draw your attention to the serious character of the case, and the serious hemorrhage is more liable to occur near to term or at the termination of term in the beginning of labor.

Dr Wm. J. Gillette, Toledo, closing: In closing the discussion, I wish to thank the gentlemen very much for their participation in it. There is much which could be said upon this subject, but it is impossible to include it in a discussion. As Dr Ricketts has said, I think we are only on the verge of a new treatment for these cases. The death-rate in this serious condition for both mother and child is very great; and those of us who have had to face the condition will, I am sure, welcome any procedure which promises help over any other now known to us. It seems to me that much may be said for an operation which will probably save most of the children now lost. Cesarean section should have no mortality so far as the child is concerned, and if we can show by statistics that it will save more mothers than can be saved by the old methods, I cannot see that there can be any argument against it.

Ovarian Pregnancy: Is it an Explanation of Ovarian Hematomas?

BY N. STONE SCOTT, A. M., M. D., CLEVELAND

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In operations for ovarian disease hematomas are frequently found. A few of these, usually involving the entire ovary, depend upon the twisting of the pedicle of an ovarian tumor, but more frequently the hematoma is confined to one of the cysts, being located in a sessile tumor. Local disease of the arteries and general constitutional disease will account for some of these cases, but for the majority there is no satisfactory explanation. The hypothesis advanced in this paper as an explanation of some of these cases may not be correct; it will however give a working basis, and the effort to prove or disprove it cannot but tend toward the development of ultimate truth. This

hypothesis is that at least part of the hematomas are due to an ovarian impregnation, with early death of the fetus.

The theory that extrauterine pregnancies were ovarian in origin was advanced at the end of the eighteenth century. That all extrauterine pregnancies are not ovarian is now a well-established fact, a number of writers, among whom may be mentioned Velpeau, Farre, Willigh, and Tait, even deny the existence of the latter. By ovarian pregnancy is meant the impregnation of the ovum in the Graafian follicle after rupture, and the development of the ovum in the ovary.

Of this variety the American Textbook of Gynecology says, "Such an event, if it ever occurs, would be so extremely rare that it should be left out of consideration in a work like this." (Page 518). John Strahan, in his work on Extrauterine Gestation, says, "It is possible, but not yet proved." Kelly, in his Operative Gynecology (page 434), says, "Ovarian pregnancy is the rarest of all forms. I have never observed an example."

Campbell has collected a number of cases which might be looked upon as genuine, except that they are so old (1682-1697-1735-1767). The objection to these is, that men were at that time so incapable of minute examination in scientific matters and so prejudiced by their theories, that their testimony is not worth much.

Tait and others after examining different museum specimens labeled ovarian, judged them to be tuboovarian, starting in the ampulla of the tube.

Naturally, the first question is, Does ovarian pregnancy ever exist? One positive, well-authenticated case is worth vastly more than any amount of negative evidence. Martin out of 77 cases observed one of ovarian pregnancy. Dr Mlle Van Tusschenbroek, of Amsterdam, reported an undoubted case of ovarian pregnancy, and exhibited the specimen at the Third International Periodical Congress of Obstetrics and Gynecology, held in Amsterdam in August, 1899, in brief as follows: (*Journal A. M. A.*, Vol. 33, page

804). "The operation had followed rupture, with extensive hemorrhage into the peritoneal cavity, which occurred six weeks after the patient's last menstruation. * * * At the right ovary was found a tumor as large as a walnut, to which bloodclots adhered. The right ovary and tube were removed. The tube was quite normal; the fimbriæ were somewhat agglutinated, but the lumen was free. Pathologic adhesions between the ovary and the tube did not exist. The tumor and the ovary showed near the top the place of rupture from which a ruddy fringe came forth. After being hardened the specimen was opened by a median section going through the fringed opening. By this section the gestation-sac in the tumor was cut in halves, and an embryo appeared of about 12 mm. in length, fixed by a short and thick umbilical cord. Macroscopic inspection left no doubt that the case was one of ovarian pregnancy. Microscopic investigation showed that the impregnated ovum had developed within a Graafian follicle. That was proved by the fact that the wall of maternal tissue which surrounded the ovum showed the structure of the ruptured Graafian follicle, the well-known *corpus luteum*. Decidual transformation of the connective tissue in the ovisac was nowhere to be found. The fetal elements were quite the same as in normal uterine placentation. The fetal villi showed the plump and irregular forms which belonged to this early stage of pregnancy. Their epithelial investment consisted of two layers—Langhaus' cells and the syncytium. The latter was in many places ciliated."

In the *Journal A. M. A.*, page 1294, Dr J. M. Withrow reports a case exhibited at the Cincinnati Academy of Medicine, as follows: "Before making abdominal section, the uterus was curetted, and a decidual membrane, also shown, was raked out of the cavity of the uterus. The specimen presented showed the tube intact without a break, and its fimbriated extremity free from the ovary. The ovary continuous with the gestation-sac was found deep behind the left broad ligament. It was attached to the anterior wall of

the rectum by the sac and a mass of old blood-clots. There was no *corpus luteum* on the other ovary, and none elsewhere on the ovary presented, so that all the indications of an ovarian pregnancy were present." That ovarian pregnancy can exist would seem probable from this latter case and a few others similar; the history of the van Tusschenbroek case, would, however, positively settle that part of the discussion, because in that case there was no doubt about the question of pregnancy, since the fetus was found in the ovary.

Granted then that there is such a thing as ovarian pregnancy, why is its proven existence so rare? Though any pregnancy is the more readily recognized the farther advanced the stage, in the extrauterine pregnancies the determination of the original location of the pregnancy becomes far more difficult as time advances, on account of the changes which take place in the form and position of the organs and from the formation of adhesions. The history of medicine contains many cases of extrauterine pregnancy in which the ovary enters into the formation of the gestation-sac. Tait and others have considered it probable that all of these cases started originally as tubal pregnancies with the ovum in the ampulla of the tube. The development of such a pregnancy would result in the gradual distention of tube and ovary, and the mergence of both into the gestation-sac; doubtless the majority of these cases originate in this way. But assuming that a minority—a small minority if you like—of extrauterine conceptions take place in the ovary, the position of the gestation-sac, whether in these or in tubal pregnancies involving the ovary, would during the later stages of development be identical. Because in ovarian conception the impregnated Graafian follicle is located superficially in the ovary immediately under the ampulla of the tube, and with its growth would merge into a tubo-ovarian pregnancy.

Turning now to those cases which never even approach maturity, the principle that the death of the fetus may result

in its complete and rapid absorption, which is abundantly proven in the history of uterine pregnancies, applies with equal force in the extrauterine varieties. Retrograde metamorphoses, which of course tend to obliterate the evidences of a preexisting living ovum in proportion to the length of time elapsing between conception and the death of the fetus, take place in the placenta and other fetal tissues to such an extent that within a few short weeks the laboratory can only return a finding of "organizing blood-clot." Such a result seems to be clearly indicated in the report of the following case.

Four years ago Mrs. M. came to me with a postpuerperal abscess, which I operated on, removing a large tuboovarian abscess from the left side, where the tube was found implanted in the uterus at the internal os, while the implantation of the tube upon the right side was normal; here the tube and ovary were found slightly adherent to each other and to the broad ligament. These adhesions were freed and the right tube and ovary left. A year later the patient again consulted me concerning a considerable mass in the right side of the pelvis; with local treatment she made a symptomatic recovery. Soon after she noted signs of pregnancy, suppression of menses, morning sickness, enlargement of the breasts, and other concomitant symptoms; when between two and three months along she had considerable pain in the right side, and consulted Dr W. W. Leonard of Akron, who made a diagnosis of extrauterine pregnancy; at his request she consulted Dr Jacobs of Akron, who confirmed the diagnosis. As the symptoms were not very urgent she refused operation, with the hope in her own mind that time would prove the doctors mistaken, and things come out all right in the end. A year after the first symptoms of pregnancy were noticed, pains in the side and other symptoms of local disturbance increased, and I was consulted with reference to the best course to be pursued. Physical examination now showed a very large mass in the pelvis upon the left and another some-

what smaller upon the right side and behind the uterus which was pushing close up behind the symphysis; the sound passed into the uterus showed it to be of normal depth.

Operation was advised, and performed June 5, 1899, at the Cleveland General Hospital. The abdomen was opened by a median incision four inches in length; the omentum was found adherent to the anterior abdominal wall, and there were a few adhesions between the right lateral and posterior wall and the pelvic tumor, but no intestinal adhesions; the uterus was pushed close up to the symphysis by a large, multilocular, right-sided, intraligamentary cyst; the main cyst had extended behind the uterus into the left side, thus it was that most of the mass seemed on pelvic examination to be situated on the left side of the uterus. Running over the top of the mass was the tube, apparently closed at both ends, dilated by the retained secretions to a diameter in the largest place of seven-eighths of an inch. The broad ligament was incised along the tube, and the cyst enucleated, during which several of the smaller cysts were ruptured. About the center of the growth, situated opposite the closed end of the tube, was one cyst some two and one-fourth inches in diameter, which seemed from its color to be filled with a dark substance, whereas all the rest of the cysts were filled with a very light brown or light yellow fluid; during enucleation the dark cyst was ruptured slightly and a small, old blood-clot forced out. After the removal of the ovarian tumor the anterior and posterior layers of the broad ligament were brought together and stitched with catgut, and the abdomen was closed with interrupted through-and-through stitches of silkworm-gut.

Twenty-four hours after the operation the patient complained of boneache and headache, had a full bounding pulse, and a dull right lung; under free catharsis, with the internal administration of an alkaline diuretic and tincture of aconite, the congestion of the lung was subdued in two or three days; convalescence was thus established, and thereafter uneventful.

Macroscopic Examination of the Specimen—The specimen, after its removal and after the escape of the contents of several of the smaller cysts was in the form of an irregular mass, some five by three by two and a half inches, composed of a number of cysts, some thick-walled and some thin, containing a more or less gelatinous fluid of a brownish or yellowish color. One cyst, situated about the center of the mass in its long diameter, and to the posterior of the mass as it lay in the pelvis, was much darker colored than the rest. Running over the top of the general tumor could be seen the dilated tube, the fimbriated extremity of which was entirely closed; the tube was dilated to a diameter of seven-eighths of an inch, and filled with a slightly yellowish, opaque fluid. After hardening in formaldehyd a section was made through the center of the mass; the one cyst containing the dark old blood-clot presented many appearances of an ovarian pregnancy; directly opposite the closed fimbriated extremity of the tube could be seen the original rupture of the Graafian follicle through which impregnation must have occurred; this rupture was filled with a plug of new tissue three-sixteenths of an inch in diameter, and from two to four thirty-seconds of an inch in thickness; this plug of tissue was interposed between the closed Fallopian tube and the contents of the Graafian follicle, at the point where the inflammatory exudate which filled the spaces between the fimbria was thinnest. The contents of the Graafian follicle were distinctly divided into two parts, one of which seemed to be the original placenta, and the other the blood-clot filling the cavity of the membranes; the part which seemed to be the placenta was intimately adherent to the Graafian follicle wall; throughout the rest of the Graafian follicle there was a delicate membrane interposed between the blood-clot and the follicle wall, apparently the chorion. Upon the external surface of the cyst containing the ovarian pregnancy was a rupture which occurred at the time of the operation, one-half inch long, with ragged, irregular edges, through which pro-

jected a part of the blood-clot contained within the cavity. On section the tube was found to be adherent to the fundus of the ovarian tumor, its walls were decidedly hypertrophied and its cavity dilated; at the fimbriated extremity the tube was entirely closed by new connective tissue; this tissue was the thinnest directly opposite the point of the ovarian tumor which had been the original rupture of the Graafian follicle. Part of the specimen was submitted to the Hannum Laboratory; the following was the report returned:

"Examination of microscopic sections of ovary supposed to be an ovarian pregnancy shows the condition to be merely a very large *corpus luteum* with considerable hemorrhage into its center, which has organized to a considerable degree."

A portion of the specimen was next submitted to Professor Welch, of the Johns Hopkins Hospital, who reported as follows:

"Examination of Part of Ovarian Tumor for Dr Scott.

"The specimen is well-preserved and permits a satisfactory examination. There is no evidence of an ovarian pregnancy, (I am skeptical as to the occurrence of true ovarian pregnancy), and indeed I feel confident that the possibility of the hemorrhagic cyst having ever been the seat of pregnancy can be excluded. Your description of the case and specimen is very clear and precise, and all that could be desired.

"The specimen is a part of a cystic ovary, measuring 5½ cm. in length and 3¼ in breadth. It is of irregular shape and presents part of three cysts, one 2.5 cm. in diameter, nearly filled with dark reddish-brown material, adherent to the lower wall of the cyst and evidently composed largely of clotted blood; a second cyst, 3 cm. in diameter, separated from the former by a septum 3.5 mm. in thickness, empty, with smooth, pale, grayish, inner surface; and a third cyst, adjacent to the preceding, of a similar appearance, but with thinner external wall. Only a small portion of this third cyst is present. These three cysts, only the upper parts of which are present in the specimen, project at the external surface of the ovary, their walls being thin but varying from 5 to 1.5 mm. in thickness. Over the second cyst, however, there is a piece of ovarian tissue, 8/10 mm. in thickness, this

being the largest amount of firm ovarian tissue present in the specimen.

"The external surface of the ovary is nodulated from the projection of these cysts, but, save the presence of remnants of fibrous adhesions, it appears intact so far as the part present in the specimen is concerned. There is no portion of the tube with the specimen. (It should be noted that the measurements of the cysts given above relate only to the parts present in the specimen, and do not indicate the size of the intact cysts.)

MICROSCOPIC EXAMINATION

"(a) Of ovarian tissue. Flat, or in places low, cubical epithelium can be demonstrated over the external surface of the ovary and covering the tags of fibrous adhesions. Beneath the epithelium is a *tunica albuginea* of moderate but varying thickness, composed of layers of fibrous tissue with spindle-cells. Beneath this the ovarian stroma is composed of the usual short fusiform cells. A few ovuls or primordial Graafian follicles can be detected in the superficial layers of the stroma. Blood-vessels are numerous, but not abnormal. There are rather more scattered lymphoid cells than normal, but polynuclear leukocytes are not increased in number in the parenchyma of the ovary. There are a few *corpora fibrosa*, showing the customary hyaline coils, and in or adjacent to some of these are cells filled with yellow granules of blood-pigment.

"(b) Of the cysts with clear contents, as already mentioned, two such cysts are present in the specimen. These are ordinary dilated Graafian follicles, not presenting at all the appearance of cysts in ovarian cystomata. Their epithelial lining is mostly deficient, but here and there a few cubical or spherical epithelial cells can be detected. The contents were evidently clear. The theca is the ovarian stroma, the innermost layers being poorer in cells than the outer.

"(c) Of the cyst with hemorrhagic contents. This is a *corpus luteum* cyst. The contents consist mainly of red blood-corpuscles, more or less disintegrated, with a few scattered nuclei and small spherical cells. There is no epithelial lining, the inner parts of the cyst-wall consisting of the typical, granular, spherical, and polyhedrical cells found in the *corpus luteum*. These cells near the lumen are closely crowded together, farther out they are separated by

an increasing number of fusiform cells, and here fibrillated stroma and capillaries make their appearance, becoming in the outer layers more fibrous, even hyaline. Throughout the wall of the cyst the scattered cells filled with brownish-yellow granules of blood-pigment. All of these appearances are such as are present in *corpora lutea* containing blood coagula undergoing organization. The size of the cyst is, however, larger than a true *corpus luteum*, so that it must be regarded as a cystic formation of a *corpus luteum*, such as is now recognized as occurring not so very infrequently.

"Diagnosis. *Hydrops folliculi. Corpus luteum* cyst.

"Remarks. There is no evidence of pregnancy. It is impossible in my opinion to interpret the hemorrhagic cyst as having been the seat of an ovarian pregnancy. It is doubtful whether such a form of pregnancy ever actually occurs, and in the present instance, if there were or had been pregnancy at the site of the cyst, some indication of it would certainly exist, whereas the appearances are not at all peculiar, being such as are common in cystic *corpora lutea* with bloody contents.

"Of course I cannot determine from the specimen whether a tubal pregnancy may have existed, but from the description of the entire specimen I see no evidence of it.

"As regards the nature of the rest of the tumor I can only draw inferences from the description of the entire specimen during and after its removal. The possibilities are simple cystic ovary, the remaining cysts being like those in the specimen sent, and consisting of dilated Graafian follicles; or an intraligamentous cystoma springing from the ovary; or a cystic tumor in the broad ligament of parovarian origin. It hardly seems worth while for me without the entire specimen to discuss these various possibilities, especially as I judge that the interest relates mainly to the question as to the existence of an ovarian pregnancy."

While there can be no fault found with these laboratory reports, it is very evident that the examiners were mentally biased against the idea of an ovarian pregnancy, and their findings do not prevent the possibility of its having been an ovarian pregnancy, in which, on account of the time which had elapsed from the death of the fetus to the removal of the tumor, the retrograde changes had been so great as to have made it impossible to discover the signs of pregnancy.

In order to test this point I selected a specimen of undoubted tubal pregnancy, which occurred in my own practice, and was operated upon on April 13, 1898. From the history of the case she must have been about three months pregnant, and, at the time of the rupture and death of the fetus, had reached the same stage as in the first case; the tumor was removed three months after this time, making six months less retention of the dead fetus than in the first case. On removal of the tumor a fetus was found in the tube; numbers of hemorrhages had occurred throughout the substance of the placental tissue. A piece of this placental tissue including a portion of the chorion covering the placenta, was sent to the Cleveland laboratory with request to examine for determination of pregnancy. The report was returned of hematoma undergoing organization, with no evidence of pregnancy.

In view of the fact that an undoubted case of extra-uterine pregnancy, with death of the fetus at three months and retention for three months longer, showed retrograde changes of so marked a nature as to make the laboratory findings of pregnancy difficult or impossible, it is not surprising that with a longer retention the evidences of pregnancy would be still more difficult to establish.

To sum up:

Hematomas of the ovary are comparatively common, and we have no explanation for their occurrence.

Ovarian pregnancy is a proved possibility. Continued development of the ovum in ovarian pregnancy causes changes in the organs and tissues such as to render the demonstration of its ovarian origin impossible.

The most natural consequence of the early death of the ovum in ovarian pregnancy is its gradual transformation into an ovarian cystic tumor. Added to this, retrograde changes obscure its origin and a hematoma is the final result.

THE PREVENTION OF PELVIC DISEASE BEFORE AND DURING PUBERTY

BY WM. H. HUMISTON, M. D., CLEVELAND

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The limited time allotted me for presenting this subject will necessitate only brief reference to a few conditions giving rise to pelvic disease in young girls.

So intimate is the association between the normal functional life and soundness of mind and body in the young woman, that my part of this discussion resolves itself largely into the subject of general hygiene. However interesting a resumé of the authorities upon proper diet, dress, posture and exercise (both mental and physical) might prove, yet I shall consider but a few points of more specific character.

The first question which one naturally asks is "What *are* the pathologic conditions of the uterus and its adnexa whose causative factors may be traced to the period leading up to and beyond puberty?"

1. Retroversions and retroflexions of the uterus.
2. Endometritis.
3. Metritis.
4. Sclerotic and cystic degeneration of the ovaries.

Goodell has related a number of cases of sudden misplacements of the uterus caused by the making of a misstep, or by jumping from the high old-fashioned stage-coaches when the bladder had become, during a long journey, greatly over-distended.

Many children are loath to give up a moment of their time at play to answer the call of nature, and the older ones are often compelled by their modesty or by unfortunate circumstances to withhold from urination beyond the measure either of comfort or safety. I can see in this one of the most frequent causes of the backward displacement.

The habit of undue bending-over of the body while sitting, together with the wearing of corsets which modify the direction of the intraabdominal pressure is another evil universally recognized.

Endometritis: The mucous membrane lining the cavity of the uterus is just as liable to catarrhal processes as are like membranes elsewhere in the body, and *more* susceptible in fact because of the recurring hyperemia attending the menstrual flow. Acute suppression of the menses, caused by sudden chilling of the body after prolonged exertion (as one so frequently sees the dancer in the interim between waltzes rushing to an open window for a breath of air), is a direct factor in the causation of an acute endometritis. "I caught cold while menstruating" is the too-common phrase to which we have to listen. This leads to the more chronic forms of endometritis, (hypertrophic and hyperplastic glandular endometritis), which I more commonly meet in the virgin.

3. Metritis in the young unmarried woman is fortunately less common, but there is a condition described by Mary Jacobi, and termed by her menstrual subinvolution, which leads to the same pathologic change as does subinvolution following parturition. This condition is seen as a sequence to endometritis in malpositions of the uterus, and is of such serious character that early interference is absolutely necessary to preserve the function.

4. *Ovarian Sclerosis:* In the noninflammatory, or as I would choose to term it, primary sclerosis of the ovary, I feel that there must be some active etiologic factor of which we as yet know nothing. I hesitate to believe with Osler that the fault is in the material of which the parts are builded —an inheritance—but that the cause lies rather in some fault of nutrition in the child. It does however occur as a sequence to changes in the uterine structure. This brings me to the discussion of the prevention of these disorders.

There is no new thought which I can bring to bear to ?hten the burden of the young woman. I can only give

added evidence of the necessity of wisely guiding her to a practical knowledge of the conditions which obtain through her often-repeated functionating cycles. We must find fault with our civilization when we learn of the care which primitive peoples were wont to exercise over the young girl and the woman. It would seem that what they did from purely a religious duty we might be wise enough to attempt at least to carry out for the benefit of our State. It is said that among some of these early peoples it was a time of greatest moment when the young girl approached her first menstrual period, and most carefully was she protected and guided. They had especially-designed huts where they were obliged to remain during each period in enforced idleness—not even being allowed to stand erect—their huts being too low to permit it. The Mosaic law compelled such an enforced retirement.

What a contrast to the almost total disregard which we today practice toward our children. (*Am. Journal of Obstet.*, Dec., 1900). Engelmann says that "functional disturbances are least in the first years of pubertal development in the high-school, increasing with each year, increasing in the normal school and college, increasing with intensity and seriousness of work." He refers to the New England woman as "supposedly more perfect than in any other section, intellectually above the average but with a physique below par, with greatly reduced reproductive powers—*all* due to the forcing of study at the age of development."

Dress reform is spreading widely and rapidly; more attention is being given to the proper diet of the young; physical training forms a part of the curriculum of the public and private schools, but there is a tremendous waste in the ever-increasing force toward mental acquirements—energy necessary to proper physical development, energy requisite for normal functional life.

"An ounce of mother is worth a pound of doctor," but the burden of responsibility should rightly rest upon the physician, whose care it should be that the mother under-

stand the requirements of the developing girl, and appreciate the necessity of proper methods for equably distributing during the years of growth and early maturity the force which will round out her mental, physical and functional qualities.

Prevention of Pelvic Inflammatory Diseases After Marriage

BY RUFUS B. HALL, A. M., M. D., CINCINNATI

Our present knowledge does not extend far enough to enable us to have any influence in preventing benign and malignant growths of the female pelvic organs. For this reason they will be wholly disregarded in this discussion. I have therefore somewhat modified the title of my paper as published in the program, and will limit my remarks to the prevention of inflammatory pelvic diseases after marriage, as they are preventable in a large majority of instances.

It has been said that statistics are worthless, but I am convinced that carefully tabulated records of cases coming under the observation of physicians are very valuable, especially when honestly used in a discussion like this one. The following statistics have been taken from my private office records where every case that enters my consultation-room is carefully recorded. These results may be of interest and value to us in this discussion. The records show that in 498 cases of inflammatory disease of the uterine appendages, or of inflammation in the pelvis, or both, including those having one or many attacks, the infection was due to the following causes: Gonorrheal infection, that could be distinctly traced, 247 cases. Of this number 101 required an abdominal section for relief, and of this number a large majority were pus-cases. The remaining gonorrheal cases, 146, were not advised to have a section made. Their disease was not serious enough when I saw them to justify a section

for the removal of the appendages, and other means were instituted for the relief of their symptoms. How many of this number subsequently came to the operating-table the writer is unable to say, but he is reasonably certain that a number of them would eventually be compelled to have a section made for relief. In 143 cases the cause of the inflammation was either an abortion that was unavoidable or induced. A very large percentage of the cases were induced abortion, usually done by the patient herself. Of this number 29 had to be subjected to a section for relief, and 114 were otherwise treated, most of them making symptomatic recoveries. I wish it distinctly understood, in passing, that these cases, both gonorrheal and septic, were almost all of them of long standing, from a few months to a number of years, before consulting the writer. Especially is this true in reference to the cases which were subjected to an abdominal section when the cause of the disease was an abortion. In 52 cases the cause of the inflammation was due to laceration of the cervix and perineum, with malposition of the uterus. Of this number 18 cases were subjected to a section. The remaining number were otherwise treated. Exposure during the menstrual period, or "taking cold" at that time, was recorded as the cause in 29 cases. In the majority of these cases the patients were unmarried, and there is reason to believe that some other cause might be assigned. In nine of these cases it was necessary to make a section for their relief, and twenty did not require a section. Tubercular peritonitis was the cause in 27 cases. Of this number twenty cases were subjected to an abdominal section, and seven were not so advised because the latter number had no accumulation of fluid or pus that could be diagnosticated.

Thus it is seen that the two chief causes of pelvic inflammatory diseases are gonorrheal infection and septic infection following abortion. The prevention of the former has been discussed by the writer on previous occasions, and for this reason will not be considered in all of its phases at

this time more than to remind you of the duty you owe to the laity of imparting knowledge upon every possible occasion upon the subject of gonorrheal infection. The physician should instruct young men of the danger to the health of their future wives should they contract gonorrhea. In treating the disease in the male the physician should be certain that the patient has remained well for a period of many months before permitting him to marry. It is a lamentable fact that a very large percentage of the cases referred to in this paper were the wives of men who had the disease before marriage and who believed themselves cured. But they infected their wives, in not a few instances, many months after marriage. The writer is still of the opinion expressed in his paper published in the *American Journal of Obstetrics* in 1890 that we must look to the education of the laity for the prevention of gonorrheal infection. Further experience has only emphasized the lesson there taught: "I would advise that during the last year in high-school, in every school in this land, a text-book be employed embracing embryology, hygiene, anatomy, and physiology, including sexual physiology, and that these subjects be taught to every student, both male and female. This could be accomplished without shocking the morals of the most susceptible or fastidious individual by dividing the classes so as to separate the sexes. A female teacher should teach the girls, and a male teacher the boys."

I cannot dismiss the subject without reminding you of the fact that gonorrhea, unrecognized as such, is the direct cause of a long list of what might be termed minor ailments of the female; *viz.*, subacute and chronic inflammatory diseases of Skene's glands and of the glands of Bartholine, which not infrequently result in abscesses. Another complication is inflammation of the urethra, often extending into the bladder and causing cystitis, which is most difficult to cure and in not a few instances remains uncured. The glands of the mucosa also become involved, resulting in cervical and corporal endometritis, with a discharge of the

most persistent character. This condition frequently causes sterility or produces a congested condition of the uterus, with dragging sensation in the abdomen, with neuralgia and most serious reflex nervous disturbances. In addition to the above-named ailments we often see the infection extend from the uterus into the tubes, producing salpingitis, ovaritis, and attacks of pelvic peritonitis, leading to graver form of pelvic disease. If we could eliminate gonorrheal infection the gynecologist would lose no small percentage of the patients who come to his consultation-room. The number of operative cases for the removal of pus would be greatly lessened, and we would prevent much of the suffering of womankind.

Septic infection following abortion from retained membranes is of frequent occurrence, and in those cases in which the patient makes a primary recovery, as they usually do, there is left an endometritis which is difficult to cure and often leads to salpingitis. The subject of induced abortion is one that is constantly brought before the physician in some of its phases. Seldom a month goes by that some married woman does not come to her physician and state that she is pregnant and wishes to know what she can do to interrupt it. She will frequently tell you that she has taken medicines of various kinds to bring on her menses, but that they failed to do it. When we look over our records we find a large number of women suffering from uterine disease which was caused by an induced abortion, and many of the most serious cases calling for the gravest surgical operations belong to this class. Too much stress cannot be laid on the gravity of the procedure, and furthermore it must always be borne in mind that death may be the immediate result of an abortion. Especially is this so when women try to produce abortion upon themselves. About a year ago I saw three cases within three weeks in consultation with other physicians in this city in which the women had either produced or attempted to produce abortions upon themselves. In each instance the patient was a married woman, mother

of one or more children, and the only reason she had for producing an abortion was the desire not to raise another baby. In each instance the patient was suffering from septic infection. There was a large accumulation of pus in the pelvis in two of the cases, with profound sepsis. These patients were subjected to vaginal section with the removal of a large quantity of foul-smelling pus. One patient died within a day or two after the pus was evacuated, from her preexisting sepsis which had existed for seven or eight weeks. The other patient had a long, tedious convalescence, is a semiinvalid now, with adherent tubes and ovaries, and with no immediate prospect of recovery. The third patient referred to had profound sepsis, with no accumulation of pus that could be determined. She died within a few hours of my first visit, without any operative interference. These are only a few cases that could be narrated of a long list that every physician is too familiar with. If the patient does not die immediately following the abortion, as stated before, it may be followed by such a serious pathologic lesion in the pelvis as to call for the most heroic surgery. They realize their mistake when it is too late to be of service to them, and they would change it all if they could.

These cases are a fair illustration of what operators see from this cause very frequently. I am inclined to believe that many women are ignorant of the dangers they incur from an induced abortion until it is too late. I make a plea for the more extensive dissemination of knowledge by the family physician to his patrons upon this important subject. Few women would produce an abortion upon themselves or consent to have it done, unless they had a crime to conceal, if they knew of the dangers attending it as the physicians know them. It is in these cases that it is the physician's duty to impart the knowledge. He should explain to her the danger of retained membranes during the early months of gestation and the great danger of septic infection on account of the retained membranes. He should tell her that if she has sepsis afterwards and recovers from it she is

left with a septic endometritis which may lead to salpingitis with suppuration in one or both tubes, necessitating a section for their removal before she is relieved of her pain. It is in this class of cases that an ounce of prevention is worth a pound of cure. They are all preventable; indeed, their occurrence ought to be comparatively rare. It is for this reason that the profession should be united in the effort for the prevention of these diseases.

It is evident to my hearers ere this that, if we are to prevent pelvic inflammation following abortion, it is necessary to prevent septic endometritis. This could be done in all instances if the physician could see the patient early enough to thoroughly empty the uterus before decomposition of the membranes takes place, but unfortunately he sees these cases only after this has been in existence for many days, and often he sees them for the first time when they are thoroughly septic from this cause.

By referring to the statistics it will be observed that laceration of the cervix and perineum plays no insignificant role in the cause of pelvic inflammation. In laceration of the cervix, with the usual laceration of the perineum, and the retroversion that so often accompanies these injuries, with the endometritis following it if the injuries are not repaired, we have a condition present which may lead to pelvic disease in a large percentage of these cases. These patients all have subinvolution following their delivery, and many of them drift along until the endometritis becomes chronic or even a salpingitis is established. It is the physician's duty to repair the cervix and perineum within a few months after injury, before there is a chronic endometritis and salpingitis established, and before the uterus has been in the malposition long enough to cause extensive disease of the ovaries from pressure, to which the ovaries are always subjected after they are dragged down with the uterus in its abnormal position. If the cervix and perineum are repaired within a few months after delivery in all cases in which the uterus is retroverted, and that organ tem-

porarily supported by a properly-fitting pessary, the physician would save his patient great suffering and prolonged invalidism. It is the physician's duty, where he has waited on a woman in confinement, to examine her carefully within four months after her delivery and to make careful notes as to the injuries and the position of the uterus and ovaries at that time. And when the cervix is injured, even if it be slight, and there remains subinvolution, he should curet the uterus and repair the cervix as a means of prophylaxis.

Many of these patients do not complain, even when there are extensive tears of the cervix and perineum, until several months after delivery, when endometritis is well marked and unmistakable signs of salpingitis are present. The extension of inflammation through the tubes in long-standing endometritis following injury of the cervix is a condition not infrequently met with. It is a well-known fact that subinvolution of the uterus, which may continue for many months, is the rule after extensive laceration of the cervix. It is in this class of cases that we occasionally see a chronic catarrhal condition continue for an indefinite period, with depreciated general health of the patient and changed type of menstruation, the patient complaining of pain in the back and abdomen. These symptoms extend over a period of many months until finally the patient goes to bed with a sharp attack of pelvic inflammation. Upon thorough physical examination the physician finds that salpingitis already exists. It may be too late now to cure this patient and prevent recurrent attacks of pelvic inflammation, but I have every reason to believe that, if the injury to the uterus had been repaired and the retroversion corrected within a few months after her delivery, she would have been perfectly and permanently cured and thus prevented a life of invalidism. Just as long as women bear children, just that long will these injuries to the cervix and perineum be recorded against the obstetrician. That should be no cause for chagrin on his part, but neglect to repair

them and prevent preventable diseases should be an opprobrium to the medical profession.

The great frequency of peritoneal tuberculosis in the female as compared with the same disease in the male is a well-recognized fact, and it is fair to presume that the bacillus enters the peritoneal cavity through the uterus and tubes. This theory is sustained by the clinical facts gained in the operating-room in dealing with this disease. If in the future it is definitely settled that the route of infection is through the vagina, the question of prevention will be an interesting problem. The fact that the disease occurs in the virgin as well as the woman who has borne children only emphasizes the necessity for careful investigation to settle definitely the mode of infection in this dread disease.

Guarding against the above-named sources of infection is not the only branch of prophylaxis that the intelligent physician is called upon to consider. It is not at all uncommon for the physician to be consulted by one who has recently married in regard to the "best method of preventing conception." The statement is made in almost every instance that they do not wish to have children for a few years, but would not object to one or two after a while. They do not realize the danger that the wife incurs of laying the foundation for a chronic disease which may leave her forever sterile and possibly an invalid as well. The various methods and practices used to prevent conception have a distinct bearing in establishing certain pathologic pelvic conditions in not a few women, especially the practice of using cold water as a vaginal douche. This practice not infrequently causes endometritis which goes on to salpingitis regardless of the best-directed treatment for relief, until finally the patient is a subject of pelvic inflammation, with possibly suppuration of the tubes, which necessitates a section and removal of the diseased organs for relief.

In closing my remarks I wish once more to emphasize the statement that prevention of pelvic inflammation in women must come largely through the enlightenment of the

laity by the medical profession. This can be done only through the profession, and I am convinced that in time it will be done and that these preventable diseases will be greatly lessened.

THE PREVENTION OF PELVIC DISEASE DURING AND AFTER LABOR

BY J. F. BALDWIN, A. M., M. D., COLUMBUS

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The prevention of pelvic disease during and after labor consists in the avoidance of infection and traumatism. Infection is frequently the almost necessary result of traumatism, but traumatism without regard to infection is frequently followed by more or less serious pelvic disturbances.

During the course of an otherwise normal delivery, the great danger to the mother is from infection carried in from without. No modern physician, I take it, believes in auto-infection; that is, in any infection arising from within the pelvis. A chronic disease of the appendix, or of the appendages, may be lighted up by the process of delivery, but no pelvic disease will be initiated except by infection from without. This infection may be introduced in a variety of ways. The very latest bacteriologic investigations have shown conclusively that the secretions of the upper part of the vagina are entirely sterile. It is not until they reach the introitus that they show evidences of contamination. The introduction of the examining finger inevitably carries some of this infection from the vulva into the vagina and up to the cervix. Copulation has the same effect. Many women practice self-examination, and this doubtless accounts for certain otherwise obscure cases of puerperal infection in which the attending physician after his arrival has exercised all due precautions.

Before the introduction into obstetric work of antisepsis, and later of asepsis, the mortality in lying-in hospitals, where infection was carried from patient to patient, was simply frightful; but with the recognition in these institutions of the sources of danger and the means for their avoidance, the mortality has decreased until now a properly-managed hospital is the safest possible place for a woman to be confined, not only as regards mortality but morbidity. The same is not true, however, in private practice. The investigations of Bacon of Chicago, and of Boxall in England, show conclusively that in general practice, and especially in rural districts, puerperal mortality and morbidity are practically no less than before the days of Lister. It is the general practician, therefore, who must improve his methods.

The use of antepartum douches, as recommended some years ago when the vaginal secretions were regarded as infected throughout, is to be unequivocally condemned. These secretions are nature's lubricant, and should not be unnecessarily interfered with. If, however, from his knowledge of the case, the physician suspects a gonorrheal infection to be present, then not only should the douches be used but the vagina should be scrubbed out as thoroughly as before a surgical operation. This cleansing is done not only in the interests of the mother but in the interests of the child for the prevention of gonorrheal ophthalmia. In the absence, however, of such known or suspected infection the special cleansing processes should be limited to the vulva and the region about. If this is done, and the practician uses the ordinary precautions as to the cleansing of the hands and instruments, puerperal infection will not take place.

In giving directions as to the cleansing of the hands of the attending physician it is entirely useless to advise any such extremes of asepsis as will not be carried out. These precautions must be limited to such as are feasible and sensible. I have seen explicit directions given requiring at least ten minutes for the scrubbing of the hands with soap

and hot water, and then three minutes continuous soaking in a 1-1000 bichlorid solution; or a similar scrubbing of the hands with subsequent treatment with potassium permanganate and oxalic acid. Such precautions are not feasible in general practice, and will not be carried out. If the attending physician scrubs his hands thoroughly with hot water and soap, and if his nails are trimmed short and kept clean, he has done all that can reasonably be expected of him. If, however, he has reason to believe that his hands have been infected by contact with other cases, then the more thorough sterilization previously indicated would be required. If, moreover, an obstetric operation is needed, involving the introduction of the hand into the uterus, as for turning or the removal of secundines, then the most thorough sterilization of the hand and arm is essential, or, better still, the use of the rubber glove and armlet. For the application of forceps the instrument itself should be sterilized by boiling. This, with the thorough washing of the hands, as above indicated, and the cleansing of the vulva, will suffice. The finger-nails of the physician are the main source of danger. Many physicians, especially in country practice, are obliged, to a considerable extent at least, to care for their own stock, and to do more or less work about the garden. Such men are very apt to have horny hands which in bad weather are quite liable to become more or less chapped and fissured. It is quite impossible to render such hands absolutely sterile. In such cases rubber gloves cannot be too highly recommended.

While the presentation and position of the child can be determined under ordinary circumstances and without any special difficulty by external palpation, this procedure conveys no information as to the condition of the cervix or the progress of labor. This latter knowledge may be unimportant in a lying-in-hospital where nurses and internes are always within reach, but it is of prime importance to the general practician whose duties require him to look after other cases than the patient in labor. He makes a vaginal

examination and decides whether he must remain or whether he can be at liberty to make other calls for an hour or more. At the end of the period which he had allowed himself he returns and another examination enables him to determine for the second time whether he can be spared. These examinations are essential, and to forbid them is simply visionary. For these cases rubber gloves, which can be left in an antiseptic solution during the doctor's absence, are a very great convenience and of great value, though not absolutely essential.

Postpartum douches, like the antepartum, should not be used in normal cases. The natural downward flow of the lochial discharge prevents infection from reaching the uterus, while the use of the syringe nozzle, even if just sterilized, may carry infection from the vulva to the cervix and even within it. In case, however, infection takes place and the lochia become offensive, then the use of the vaginal douches carefully administered by a skillful nurse is to be commended.

In case a bit of retained membrane or placenta becomes infected, or causes hemorrhage, it should be at once removed. Here, however, the use of the curet has resulted in great harm. A blind cureting of the endometrium under these circumstances will open up a thousand channels for fresh infection while removing the offending body, although it not infrequently happens that the offending bit of tissue itself may in whole or in part be missed by the curet. Under such circumstances the misdirected instrumentation will be followed by a fresh invasion of sepsis, with perhaps promptly fatal results. For the removal of such retained tissue no instrument is as sure and safe as the sterilized finger of the intelligent physician. Give the patient chloroform, sterilize the vagina by thorough scrubbing, sterilize the hands, and then steadying the uterus from above with one hand, introduce the finger and explore the interior. The finger will find the offending tissue and will almost invariably remove it with ease. In case it is too adherent the curet

may then be used directly to the spot and without injury to the rest of the endometrium. Such removal should then be followed by a hot intrauterine douche, so as to thoroughly wash out debris. This douching should be done by the physician himself, and once is sufficient if the preceding removal has been thorough.

An overlooked laceration of the perineum, even if the laceration be very slight, furnishes a point for puerperal infection. A lacerated cervix rests in the sterile region of the vagina, but a lacerated perineum is in the region constantly exposed to infection. This exposed surface is promptly removed by an immediate operation. There is no excuse for a failure to detect this injury, since an examination under the eye should be made in every case, nor is there any excuse for failure to close the laceration immediately, since the materials for so doing are in every house. It may be more convenient and look a little more professional for a practician to have with him silkworm-gut, special needles, and needle-forceps, but these are entirely inessential. A small darning-needle, or a heavy sewing-needle, with its temper removed through the center by heating so that it can be somewhat bent; silk, which can be found in nearly every house, or even cotton or linen, hair from the horse's tail, or even a cow's tail for that matter; all these are everywhere available, can be promptly sterilized by boiling, and will answer just as good a practical purpose as anything that can be found.

Lack of assistants and of suitable light and instruments render it undesirable to attempt an immediate operation on a lacerated cervix; while the fact that this cervix is in the sterile zone and will very likely heal satisfactorily without further attention, renders its closure of little importance. A laceration, however, involving the vagina and perineum belongs to an entirely different category, for reasons which I have stated, and these lacerations therefore should be repaired either at once or within twenty-four hours.

It will, of course, be useless to cleanse the vulva preced-

ing examinations if the sheets and dressings which are to come in contact with the cleansed surfaces are dirty. In most houses when labor begins the resources of the ragbag are drawn upon for the construction of an absorbent pad to be placed under the hips of the parturient. If the rags from these sources are clean nothing more can be asked for, but ordinarily their condition is the reverse; hence the attendant should insist upon a sufficient supply of clean sheets, towels, pillow-slips, or something of the sort, to secure the necessary protection of the field of delivery both during labor itself and during convalescence.

The traumatisms to be considered are rupture of the uterus, laceration of the cervix, laceration of the vagina, and laceration of the perineum.

Rupture of the uterus occurs much less frequently now than it did a generation or two ago, when physicians showed an almost inexplicable disinclination to assist nature by instrumental intervention. The dangers incident to a prolonged second stage are now quite thoroughly recognized, and it is seldom that a normal uterus ruptures simply as a result of thinning of its walls from too long continued expulsive efforts or from pressure necrosis. Most frequently rupture occurs either from the presence of a fibroid which has produced pathologic thinning or from efforts at turning made with too great vigor or too long after the rupture of the membranes. The prudent obstetrician recognizes the fact that in certain conditions of the uterus, when the contractions are unusually violent or persistent, the introduction of the hand and the manipulations necessary to turning are fraught with the utmost danger, and the dangers under such circumstances may be much greater even than those of a Cesarean section.

Lacerations of the cervix, vagina and perineum may be considered together, and here I think the present generation is guilty of sins of commission vastly more than our predecessors were guilty of sins of omission. It is confessedly impossible in all cases to prevent these lacerations, but in a large

proportion of cases, altogether too large a proportion, these lacerations are the direct result of the too hasty or injudicious use of the forceps. I say this advisedly and as a result of several years of careful investigation of hundreds of cases that have come to me for treatment for conditions the direct result of these injuries.

A normal labor may be defined as one that terminates within twenty-four hours from its beginning, and without injury to mother or child. Of this twenty-four hours all but one or two hours will be taken up with the first stage. Much more than this time may be consumed in the first stage without harm to either mother or child. If the first pains are not too frequent or too severe, a first stage may, without being pathologic, last for even two or three days with no effect whatever upon the child, and with no ill effect upon the mother. An ordinary second stage, however, will not exceed two or three hours, although many times even a longer second stage, if the pains are not particularly frequent or strong, is perfectly normal.

I believe that it is a plain truth, which should be impressed upon every student and every practician, that a normal labor should not be interfered with, and that any interference, manual or instrumental, is fraught with more or less danger to mother or child, or both. I make this statement deliberately and advisedly. Our predecessors were too timid, and as a result of their timidity, to use no harsher term, many lives were sacrificed, great and unnecessary suffering was endured, and infinite morbidity ensued. But physicians of the present day have too many of them gone to the opposite extreme, so that their sins are those of commission. The too early and too frequent resort to instrumental delivery is at the present time responsible directly for a not inconsiderable mortality and a very great morbidity. A dead baby with a crushed or disfigured head, a ruptured cervix, vagina and perineum, a collapsed and moribund mother, with a history of forceps delivery undertaken twelve, ten, or perhaps only six hours from the onset

of a first labor, is a picture which is to be seen not once or twice, but altogether too often in the experience of a consulting surgeon. The scene does not always close with the lethal exit of the mother, or even of the child, but there follows a tedious convalescence after an immediate operation on the lacerated perineum, with a later operation for the repair of the torn cervix. Only this, provided the patient escapes the removal of appendages, made necessary by resulting infection.

A year ago an enthusiastic young gentleman presented to this Society a paper pleading for the earlier use of the obstetric forceps. It is most significant, not to say amusing, that this year the same gentleman is announced for a paper on "The Repair of the Perineum."

It should be impressed most vigorously and pertinaciously that labor is a physiologic process, and that under all ordinary circumstances delivery will be naturally and safely accomplished. This being true, a woman in the hands of a clean midwife, or of one who knows enough to keep her hands away from the genital canal, is safer than if in the hands of a physician who permits himself to place undue stress upon the value of his own time and the demands of his other patients. If a physician has not time to do obstetric work he may refuse engagements or decline the call when it comes, but if he has once accepted the case he is bound professionally, morally, and legally to give to the woman and her unborn child all the time that may be necessary for her safe delivery, and no honorable and conscientious physician will do otherwise.

I know that in many parts of the country, indeed in most, the fees which physicians receive for obstetric work are ridiculously inadequate. There is no comparison between these fees and the fees received for the ordinary routine work of the profession, and yet the lives and well-being of two individuals, and the happiness of many others, are at stake in every labor and the responsibility of the physician is correspondingly great. I doubt, however, if the

ordinary physician in the State of Ohio receives on an average $10 per case for his obstetric work; this fee including not only his attention during the progress of the case itself, but by custom one to three subsequent visits. I know of nothing in our profession in which reform is more needed than in this particular. An obstetric engagement, carrying with it the responsibility which it does, should certainly furnish as much compensation as a mere broken leg. It is true, perhaps, that among the poorer classes no larger fee can be paid, but the principle should be so far established and the fee-bill so changed that, as in other surgical work, the fees of the rich should make up for the lack among the poor, while for the poorest classes in general clean, skilled midwives could advantageously take the place of physicians for ordinary attendance, the physician being sent for merely in cases requiring intervention or the repair of lacerations.

Instruments should be used only in the interests of the mother or the child, and never simply to save time or suit the convenience of the physician. Convulsions, threatening the life of the mother, or labor so prolonged as to threaten the integrity of the uterus, to exhaust the mother or to destroy the child, undoubtedly demand instrumental intervention even at the risk of laceration of cervix and perineum. These can be repaired, but the life of the child or the mother cannot be restored. With the soft parts dilated or dilatable, but with such a disproportion between the passage and the passenger as will result merely in a long and exhausting, even if not dangerous, second stage, the forceps should be used; but the attendant should be fully satisfied that the soft parts are in suitable condition, since otherwise even if the superficial parts remain intact the underlying fascia may be lacerated with resulting loss of support to the pelvic organs.

But this has not been the teaching, I am afraid, of modern obstetricians, at least if the teaching can be determined by the practice of those who have been taught. I

think it is the experience of every man having a large consultation obstetric practice, to be called repeatedly to cases by the physician, who expects him to at once deliver with forceps, and to find the patient in good condition, the membranes unruptured, the cervix half or two-thirds dilated, the vagina only partially relaxed, the perineum not yet reached by the descending head and its tissues far from ready for delivery; the patient a primapara, in whom labor had commenced 6 to 12 hours before. Were convulsions present he would unquestionably apply the forceps and deliver with perhaps a saving of the child and rupture of cervix and perineum. He knows that the woman will deliver herself, if given a reasonable length of time, safely, satisfactorily and without intervention. He explains the matter to the attending physician and sees the case with him three or four hours later; finds labor progressing and again postpones intervention until finally the patient delivers herself. The attending physician, if wise, has probably been taught his most valuable lesson in obstetrics, the lesson of judicious waiting.

But this is evidently not the teaching which too many young men receive before their graduation, or perhaps after it. In the *Philadelphia Medical Journal*, of April 13, page 706, in this the first year of the twentieth century, is an article by a well-known teacher of obstetrics in a New York post-graduate school, in the course of which the writer, in alluding to a series of his cases, states that these cases were nearly all of them "operative ones or were made so because of the presence of an ever-inquiring audience. All my cases were delivered before an audience of physicians who were unwilling to camp over night in a pauper hospital to watch a tedious labor case. Most of the cases would have delivered themselves normally."

Rattle her bones over the stones,
She is only a pauper whom nobody owns.

Here now is a teacher who thus reports his work without apparently a suspicion of impropriety. He has

performed these operations before a class of callow physicians who, impressed with the utter indifference with which he interferes with what he confesses is normal labor simply to demonstrate to them methods of procedure, will return to their own homes prepared to carry out in their private practice that which they have thus seen demonstrated in a public clinic. Such practice and such teaching are bad and wholly bad, and utterly indefensible. If the antivivisectionists should get hold of that teacher and his work I think before they get through with him he would have learned that there is a God in Israel.

Meddlesome midwifery is bad. This is a statement as old as intelligent obstetrics, but the misuse of this aphorism has done much mischief, since timidity born of ignorance does not properly weigh the meaning of the word meddlesome. Meddlesome midwifery is not that which intervenes in abnormal or pathologic conditions, but it is that which interferes officiously with normal processes. In conclusion, then, the prevention of pelvic diseases during and after labor consists, in a word, in cleanliness, patience and intelligent intervention.

DISCUSSION

Dr Chas. L. Bonifield, Cincinnati: I feel that these three very important papers should not go without discussion. All of them were able presentations of their respective subjects. In the first two I can find very little to discuss, and with nearly everything said in them I can heartily agree. With the last paper I am not so heartily in accord. What Dr Baldwin has said about the use of the forceps I think applies to the abuse of the forceps and not the proper use of them. Many young and not a few old practicians are prone to think that when the forceps have been applied delivery must speedily follow. There can be no greater mistake. Nature's method should be imitated. Traction should be made for a short time, then it should be stopped, and the head allowed to recede. If uterine contractions are recurring regularly, and the forceps are applied because they are inefficient, traction should be coincident with the pains. Occasionally nature makes a mistake, and with one or two supreme efforts forces the child through the parturient

passage. The result is nearly always severe laceration of the soft parts. If we imitate nature's mistakes instead of her normal processes can we expect good results? I repeat, traction should always be intermittent. Forceps should supplement and not supplant nature's efforts, unless she has apparently entirely abandoned the undertaking; then we shall be wise if we follow the methods she pursued until exhaustion forced her to rest. I do not think forceps are too often used, but I think they are often used with too little skill.

I myself do very little obstetric work, and what I do is almost exclusively in consultation. I am very seldom called to apply the forceps until their use is indicated. Occasionally I wish I had been called earlier. Many of the bad tears which we see are in cases which are neglected, rather than those in which forceps are applied too early. Nothing makes the tissues so ready to tear as the prolonged pressure of the head. Why are vesicovaginal and rectovaginal fistula so much less frequently seen by us than by our predecessors? Because forceps are now used, and the child delivered before the prolonged pressure of its head on the soft parts has destroyed their vitality.

There is one other point on which I wish to say a word. The doctor recommends the finger instead of the curet, and I think there is something to be said on both sides of that question. Certainly if the finger is less apt to do violence to the uterus it is more apt to infect it. Now the curet is an instrument which can be very easily sterilized, while the finger is one of the hardest things to sterilize, especially under the nail, and it is that part of the finger which must be used to loosen the fragments of placental tissue. Hence I think the advantages of the finger are, to say the least, doubtful.

Another point in the doctor's paper to which I wish to take exception is his objection to examinations. Now if the surgeon can clean his hands for a laparotomy, why cannot he clean his hands for an examination in an obstetric case? If the vagina can be sterilized so that a vaginal hysterectomy can be safely performed, it can be sterilized so that the obstetrician can safely make as many digital examinations as he may desire. As long as we teach that frequent examinations must not be made, so long will we have poor obstetricians. No one ever learned the art of obstetrics sitting idly by the bedside like a midwife, while

nature unobserved did the work. It is only by frequent examinations that one can familiarize himself with normal labor to that extent necessary for him to promptly recognize abnormality. Here as elsewhere in medicine accurate diagnosis is the foundation-stone of successful treatment. It is because physicians have been taught that they not only can but must practice obstetrics in this unscientific way, that we today have papers read advocating hysterectomy for placenta prævia, and advocating surgical treatment for obstetric conditions that should be treated in an obstetric way.

In regard to the pay for obstetric work, I heartily agree with the essayist that it is entirely too small, so that a busy conscientious man can ill afford to sit beside a bed and wait hours for the delivery of a child. The remedy is not in turning over cases to the midwife, but in teaching patients the difference between a good obstetrician and a midwife, and that your services are worth something, and that you expect to collect for them when you are through with your work.

I do not believe that there are any intelligent midwives. There may be some some place, but they are certainly not in Cincinnati. Sixty percent of the children born in this city are delivered by midwives. If there are good ones any place it should be here. But I have yet to be introduced to a clean and intelligent midwife.

Dr William J. Gillette, Toledo: These papers to which we have just listened are three of the most important that have been read before the society at this meeting. I wish particularly to emphasize what Dr Humiston has said in regard to the prevention of inflammatory diseases in young women. There is something radically wrong in our system of sending young women to school when they are beginning to menstruate, expecting them to take the same studies which strong boys take up. It seems to me that this is decidedly wrong. These young women if they were allowed to rest during time of menstruation would probably develop strong and healthy, at least so far as their menstrual function is concerned. But they are not allowed to rest. The remedy I do not know.

In reference to the matter of gonorrhea, I can endorse every word regarding it which Dr Hall has said in his paper. I think, however, that the profession is somewhat at fault

in the matter of treating it, as many physicians do not impress upon patients that it is a very serious matter for a young man to acquire gonorrhea. Most young men, in fact most of the laity, think that it is a very simple matter, and can be cured in a very short time. We who treat these diseases know differently; we know that gonorrhea is one of the most serious diseases that a young man can acquire. I am afraid physicians many times speak lightly of it for the purpose of pleasing the patient.

So far as the use of forceps is concerned, Dr Baldwin has put it none too strongly. I recently attended a meeting of a certain medical society in this state, at which a gentleman present advocated practically the universal use of the forceps. Now I believe that this doctrine is damnable. There are many ways in which the patient may be injured by their use. Tears are not all. The carrying in of infection to the uterus by them, and from thence to the tubes and ovaries, is a matter that should be considered in no light manner; for if it does not kill, yet it may make an invalid of the patient for the balance of her life. The forceps are instruments for great good with possibilities for great harm, and for this reason should be used only when necessity arises. Probably a fair average would be to use the forceps in every eight or nine cases; but to me such a doctrine as their "universal use" is damnable.

Dr S. S. Thorn, Toledo: I would like to inquire what is the possible effect upon children of this constant jumping of the rope. I see much of it on the streets, and have been led to believe that this long-continued jumping until the child is exhausted and the tissues relaxed is one of the causes of flexions and versions which are so troublesome in early life.

I would like to ask another question. We have heard from these men who know about gonorrhea and think that it is so bad in the male—what must it be in the female? I think it would be a good idea to direct some of the instruction to them, and not altogether to the men.

Dr U. H. Hon, Bloomington, Ind.: A word concerning the jumping of the rope. We are very apt to forget that in young girls the uterus is so small and of so little weight that it does not make much difference whether they jump up and down. The ligaments which hold the uterus in place are placed there by a higher power than ours, and in

pastimes where such motions are brought into play as are used in jumping there is no harm done.

It has also been suggested that the young child be taught its lessons in reference to the sexual functions. You will find it a very difficult thing to overcome the objection that people all over the world, and especially in this country, would have to teaching things concerning the sexual apparatus. They will not receive it in most cases, and often they will laugh at you. In fact they are just like the boy who will take the chances, and if there is any experience to go through they want it. You tell a boy what is good for him, that you have gone over the road and know, and he will tell you that he wants to go over the road. To speak of these things among the laity in many instances is not considered nice.

I was sorry the last speaker did not get time to finish his paper. I think, however, conservatism should be the rule, and there is one thing which we should all remember, and that is that what is all right in the hands of an expert, one who is skilled in a certain line of work, should be carefully avoided for a long time in the hands of the inexperienced.

Dr Y. Stephenson, Georgetown: I have very much enjoyed the three essays which have been presented. In reference to teaching the younger childrn, I think great fault exists in the physical training of children. You make observations in our schools—it is so in our part of the country—and you will find that many of the children do not walk and stand erect as they should. If they assume the proper position, having been trained as they should be, the organs of the body have natural rest, as you all know.

In reference to Dr Hall's paper, I think this a very important subject. The subject of gonorrhea has become famous, not only in the cities, but throughout the country districts. Boys from 12 to 16 years of age become diseased, and those are not all among the common people, but among the best families, and the matter is treated lightly by the physician who treats them. Many doctors say that it is a very light matter, and that the disease is very easy to control, and that they would just as leave have it as a bad cold. Of course this is all a mistake. Doctors, I am sure, do not put enough stress upon that trouble.

The last paper is one that I most heartily endorse. I

have been practicing medicine for 37 years. Fortunately or unfortunately, as the case may be, I have never seen the day when I had any use for forceps. I have always believed in the old teaching that when the human was created for a purpose there were provisions made for that purpose, and I have never yet failed to deliver a woman of a child. I always wait and allow nature to do all the work possible before I attempt to interfere in any case, and I will say that I was never detained with a case over thirty hours. I have them exercise and go through all the manipulations of walking, and keeping the temperature of the body in proper condition, in order that they may be prepared for their ordeal. Oftentimes if they are strong and rugged, I give them some depletive remedy, using aconite a great deal, and I find that this remedy in many cases goes a long way in assisting nature in her work.

I will say for the benefit of Dr Coleman that I have never lost but two cases in 37 years, and I have had over one thousand cases. I have never failed to deliver the woman of a living child if the child was living when I was called.

Dr D. W. Steiner, Lima: I have been very much interested in the papers which have just been presented. I do not intend to take up any time discussing the first two papers, but I would like to make a few observations on the last paper and some of the discussions. I am sorry my way has not fallen in the flowery paths of the gentleman who has just preceded me.

Now the essayist stated that twenty-four hours in labor was not a long time. I do not know what he means by the term "labor." By "labor" is usually considered the propulsive stage. You see a woman who has pains and there is no dilation present. You see her again twenty-four hours afterward, and there is still very little dilation. No one who has any knowledge of the practice of obstetrics would think of saying that the woman had been in labor twenty-four hours, but where is there a man who is here today who would leave the head impacted in the pelvis twenty-four hours? If the head is in the pelvis and a normal labor going on, and such a condition as was spoken of by one of the speakers occurs, a pressure which would produce laceration, a vesicovaginal fistula, or some more serious trouble, then of course interference should be in order. It has been stated that

there are more lacerations than there used to be. I have seen women literally walking on their uteri for forty years. and why? Certainly not because they had forceps used on them. Put a woman under an anesthetic and there is not as much danger in the use of the forceps as there is in prolonged labor. I am in favor of using the forceps when the conditions arise to use them. I am not in favor of using forceps, as stated here, before the cervix is dilated in a normal case of labor. But you take a narrow pelvis, or a narrow outlet, and it is simply an outrage to allow a woman to lie twenty-four to forty-eight hours and not deliver her. Again in many cases in which the labor goes on normally, and the pains are normal the forceps may be of great assistance, and it is all over in a much shorter time than it would be otherwise.

In reference to frequent examinations, my practice is to use chloroform, and when the head begins to come down into the pelvis I proceed to the dilation of the vaginal outlet. To secure a more complete backward displacement of the perineum I have adopted the procedure suggested and employed by Dr Eastman of Indianapolis in preferring vaginal hysterectomy in the Simms position, *viz:* the complete stretching of the sphincter ani which gives much greater freedom in the dilation of the perineum than otherwise. When I cannot get my hand into the vagina I am satisfied that I am going to have a tear, but if I can get it in I am sure I am not going to have a tear. I am satisfied that I do not have any more infection than my colleagues from this procedure.

Dr Edwin Ricketts, Cincinnati: As to the prevention of pelvic diseases before and during puberty, there is one point on which I would like to say a word. I want to enter my protest here as against girls nearing the time of, and after reaching, puberty, riding bicycles. It is an instrument which is productive of more female diseases outside of gonorrhea than anything of which I know. If men doing gynecologic work were to look at it purely from a business standpoint I think they would urge all of the girls to ride bicycles.

Another thing, pelvic massage as a cure for these diseases. It is ridiculous and absurd. I hope that none of the gentlemen here who have cases of pelvic troubles to deal with will ever resort to it. I know this has recently

received an impetus through a book which has been published by an eastern gentleman, and I say again it is a procedure which should not be made use of even though the case is treated by a female physician.

Another thing, the school bench. This is a very ordinary thing I know, but I want to say Mr President and gentlemen, that there is not enough attention paid to the proper seating of our school children. You may go into any of the public schools of this city and you may verify for yourself the truth of what Dr S. P. Kramer has brought out in his report as to the ill seating-capacity of our schools. That is one of the things which is productive of just such conditions as have been so ably handled by the gentlemen in the three papers which have been presented. I agree with them *in toto.*

In reference to the use of forceps, I do not use them because I am not in that line of work.

As to the frequency of examinations in obstetric work, I want to take issue with the gentleman, and emphasize the fact that if it is possible for the abdominal surgeon to clean his hands before he goes to work it is just as possible for the obstetrician to clean his, and I say from the practical standpoint Dr Baldwin is wrong. Frequency in examination by competent men is not a bad thing, on the contrary it permits them to see where they are at as to the progress of the labor. A dirty hand ought never to be used in obstetrics, it ought not to be even in a man's pocket. Any man that is not clean in his obstetric work does not deserve the name of obstetrician. A man has no more right to do obstetric work with dirty hands than another has to do abdominal surgery without observing precautions against dirt. There is nothing to be offered as an excuse for lack of cleanliness, as cleanliness is next to godliness.

Dr J. F. Baldwin, Columbus: I think we would all be in harmony if time had permitted me to entirely finish the reading of my paper. I will therefore read my concluding paragraph. (See paper.)

Now in reference to frequent examinations: These will do no harm if the examiner's hands are clean and the vagina sterile. The physician, however, cannot spend his whole time in washing his hands. If he washes his hands thoroughly and keeps his finger-nails clean he is doing all

that the ordinary practician will do. This has been the best custom in the past, and it will continue to be in the future. If a physician has a septic case in charge, then he must scrub his hands and prepare them the same as he would for a surgical operation.

Dr Bonifield with his skill in the use of the forceps, and with his judgment as to normal and abnormal cases, does not need to apply to himself any of the suggestions contained in my paper. That paper was not written for such as Dr Bonifield, but was prepared by special request for the benefit of the general practician and was written from the standpoint of the general practician, to which class for many years I belonged. Dr Bonifield said that frequent examinations were all right if the fingers are clean, yet by a curious lack of consistency at the conclusion of his argument he advises against the use of the finger as a curet because, as he states, the finger-nail cannot be made clean.

I said in my paper that the upper portion of the vagina and the uterus were normally sterile, a fact which has been demonstrated over and over again. The lower portion of the vagina, however, and the vulva are not normally sterile and the examining finger, I do not care how clean it is, is liable to carry sepsis from below up to the sterile region, and it is in this region that danger from sepsis lies. We do not normally have infection from a lacerated cervix, an accident which is sometimes not recognized until long afterwards, but we do get infection from the lacerated perineum because this lies in the septic zone.

A word in reply to Dr Steiner. Labor, as he knows, is divided into three stages. The first stage, that of dilation of the cervix, may last 24 to 36 or 48 hours—a week for that matter. The second stage is the delivery of the child after dilation is completed. The third stage is the delivery of the placenta. Twenty-four hours, which in a primapara with a normal labor will ordinarily cover the entire period, will have its greater portion occupied by the first stage. In this stage, as everybody knows, the forceps should not be used. The second stage usually lasts from one to two hours, seldom over two hours. This is the time when I listen for the fetal heart sound, and if I find it to be getting too frequent or weak I apply the forceps, especially if the mother is not in good condition. I can sew up the perineum if I sacrifice it, but I cannot bring back a dead baby.

If there has been no interference, the membranes probably have not ruptured and the child is perfectly safe as long as the membranes are not ruptured. I think Dr Bonifield and I would agree, and I think Dr Steiner and I would agree, as to when in any particular case forceps should be used. The paper was written against the use of forceps in normal labor, and not against its use when necessary. My blood has boiled over and over again during the last ten years when I have been called into the lying-in room, as I have been too many times, only to find the child dead and the mother in the most extreme peril, and all on account of this officious interference with forceps. It has been all I could do to control myself. I have felt that the attending physician should be damned up and down for his ignorance. Only two years ago I was called to see such a case. The patient was a beautiful woman, beautifully formed, with a normal pelvis. She had been in labor only fourteen hours, and when I got there what do you think I found? There on the bed was the woman practically moribund and the headless trunk of her baby lying beside her. The perineum was ruptured, the tear extending clear into the rectum, and the cervix was lacerated, this tear opening widely into the abdominal cavity. I was asked to deliver the retained head, which I succeeded in doing in a few minutes. The attending physician did not know that the peritoneal cavity had been opened until I informed him of that fact. In three or four hours the woman was dead. Here was a perfectly normal woman in whom labor had commenced at 12 o'clock, the first indication of labor being the rupture of the waters. Two hours later pains began. Six hours from this time the application of forceps was commenced. As the forceps persisted in slipping, the child was turned and in that way delivered, except that the head was torn off. Here we had, then, a mother and child both dead within twenty hours from the onset of normal labor. Just think of it! If that woman had been in the hands of the most ignorant midwife in Cincinnati, she would have been safer.

Such teaching as that which I referred to in my paper as given in New York will give us these results, because students and inexperienced physicians seeing one man interfere with normal labor, using the forceps with the utmost indifference, will go home and interfere with their normal cases and with disastrous results. I hope that my paper

as a protest against such indiscriminate use of the forceps will bear some fruit.

Dr Wm. H. Humiston, Cleveland: I will detain you but a few moments. I am thankful for the easy manner in which I have been let off in this discussion, and I extend my sympathies to my fellow-essayists Drs Baldwin and Hall. I realized when the subject was assigned to me that I could not make an extended discourse in the time allotted to me. I wish to state in the beginning that this subject of prevention of pelvic disease is one that I am greatly interested in, and I desire now to warn you and the laity that some time in the future I expect to write a book on this topic. I may not do it until ready to retire from active practice, as then my motives could not be questioned.

In reference to the use of the bicycle: If a woman comes to me suffering with some inflammatory disease of the uterus or appendages, and she is riding the wheel, I forbid its use until I correct the condition, and then I recommend the moderate use of the bicycle, and believe it to be beneficial. It takes her out of doors and allays nervousness, besides rapidly restoring muscular tone. I tell patients to use it several times a day, not to take long rides, to be moderate in their riding, and not to ride up an incline that will require some special effort. With this care in the use of the bicycle I find it beneficial.

In reference to the use of forceps, I believe the indications for resorting to them are clear and well defined, and every practician that is a student will use the forceps when they are indicated, and not before.

I never completely deliver the head with the forceps on. They should be taken off when the head is brought well down to the perineum, and let nature do the rest. There are cases that will suffer lacerations in spite of the free use of chloroform and all the skill you can command, and it makes me tired to listen to men who claim they never have such injuries in their practice, and are ready to censure anyone who does.

If an injury occurs to the vaginal outlet or perineum, repair it immediately, and avoid many complications that may arise if you do not.

I think common sense in all these matters is prevailing to a greater extent than ever before.

Dr Rufus B. Hall, Cincinnati: I am like Dr Humiston, I think I got off in this discussion very easily, that is

I have not had much criticism on my paper. There were only one or two points which were brought up which need a reply. One gentleman said men would not listen to instructions in reference to gonorrhea. I think he is mistaken about that. I have been very much interested in this matter, and have taken the pains to investigate and keep tabulated reports concerning this matter of gonorrheal infection of women by their husbands. I have found but very few instances in which the men who were the subjects of gonorrhea before marriage, and afterwards infected their wives, that had been told by their physician of the seriousness of gonorrhea. They were told on the contrary that they were well men, that the disease did not amount to anything, that gleet was nothing, in fact these diseases did not amount to anything more than a bad cold. Again, when I was a young man, which is not so very long ago I am glad to say, when I was in college I was taught as I sat on the benches that gonorrhea in men did not amount to much, that it could be cured in a few weeks by balsam of copaiba, cubebs, nitrate of silver, etc., and I am convinced that a large number of the older practicians are conscientious in their statements when they say to me that it does not amount to anything.

How many men have come to me with tears in their eyes when I have told them that they were the cause of their wife's condition, and they would tell me that they were well six weeks ago, or six months ago. Now the point I wish to make is this: We owe to the laity a duty, we must put the responsibility where it belongs, we must tell men suffering with the gonorrhea if they marry without your consent, before you are convinced that they are well, they will certainly reap the results of their folly.

I quite agree with the gentleman who said that we must instruct the women as well as the men. By instructing their fathers and mothers, or guardians, they will let them know when they marry these young scapegoats who have had gonorrhea that they are sealing their doom. When those over these girls let them know when they marry such a young man that they will come to the operating-table a little later, they will not be so anxious to marry the young man; and the fathers and mothers or guardians will be more careful in selecting their prospective sons-in-law, and look more to their health than to the size of their pocketbooks.

What is the Significance of Cervical Lacerations?

Some Points Connected with their Treatment

BY CHAUNCEY D. PALMER, M. D., CINCINNATI

A laceration of the cervix uteri, occurring as it does almost invariably during the processes of parturition, has a greater significance than would appear at first sight. It is an accident so often associated with other conditions, giving rise to or followed by serious morbid changes in and about the pelvic structures, that its import calls for more than ordinary attention and skill.

A larger proportion of parturient women meet with this accident to some degree in their first act of parturition; but, fortunately, the tear in many cases is slight, and the recuperative powers of nature so active, that no untoward results are noticeable. As a rule the accident is not known at the time to have occurred, unless it is very deep—to and within the vaginal vault—when, in consequence, an unusual postpartum hemorrhage follows. Even then it may not be detected, for the infravaginal cervix and the vaginal vault are not inspected to disclose the arterial issue of blood from the ruptured circular artery of the cervix. A parturient woman may die from loss of blood postpartum, coming from this vessel or a lacerated bulb of the vestibule, notwithstanding the gravid uterus is well emptied and contracted.

Should, now, from any cause this tear be neglected, a quite vascular and very susceptible portion of the uterus is made bare for the absorption through open vessels and exposed lymphatics of any septic germs from within the uterus above or the vaginal tube below. Almost every parturient woman to some degree suffers with septic absorption and inflammation of the base of the corresponding broad ligament, as well as the endometrium, when there is this injury to the cervix uteri. It is the underlying

causative factor in most cases of pelvic cellulitis—largely an obstetric disease.

Nor are these results all. Any septic inflammation of the genital tract of any lying-in woman delays involution of those parts. A torn and imperfectly uniting cervix uteri leads to subinvolution of the uterus, with some coexisting endometritis and metritis. The cervix soon looks eroded, everted, takes on granular degeneration and cystic formation. Its parenchymatous structure becomes hyperplastic, indurated, elongated, and enlarged.

So, in consequence, this central organ of her pelvis becomes displaced, first downwardly then backwardly. Retroflexion is often noticed with retroversion. Fortunate, indeed, will this woman be if she escapes a resulting salpingitis, with destructive alterations in structure as well as in function of the periuterine appendages.

Naught need be mentioned of the persistent postpartum flow, the exhausting menorrhagia and metrorrhagia, and the troublesome leucorrhea, followed by a permanent sterility, which may ensue.

How many women have been broken down in general health, or made constant sufferers from some functional nervous disorder reflected from this seeming insignificant local lesion! This picture is not overdrawn in depicting all of the aforesaid consequences. They happen; not, of course, always, but often enough to make us anxious as to their possibility. There is no local lesion of the genital tract which, when severe and bilateral or multiple, is directly followed by so many local morbid changes or so much general reflex disturbance, as is this one under present consideration. Cervical lacerations signify much.

Nature does the best she can to make repairs for lacerations of the cervix uteri, by filling up the gaps with new connective tissue, organized from the granulations thrown out. Cicatricial tissue is repair tissue, and is always inferior in kind to natural tissue. It has a low grade of vitality, is sometimes unduly sensitive to touch, becomes a seat for

reflex irritations, and is prone to take on certain degenerate changes in the declining years of life.

The relation between lacerations of the cervix uteri and malignant diseases of the uterus (where it is detected five times more frequently than elsewhere in her body, except the mammary gland) is so forcibly demonstrated as cause and effect that all physicians should recognize it.

Cancer in woman is found most frequently in her womb, and in parous women. It is detected, too, in its start in that portion of her womb most liable to injury in parturition—the cervix. Seldom elsewhere is it found in this organ; if so, it is in nulliparæ and in the corporeal cavity.

Cancer with her in this organ, in the vast majority of instances, commences in this cicatricial plug in the neighborhood of the os externum, where the squamous epithelium of the infravaginal cervix joins the cylindrical layer of the cervical canal.

There is, of course, in cancerous disease of the cervix uteri the stage of innocency, the transitional stage, and that of malignancy. Aside from the diagnostic evidences of the microscope, there is the reasonable inference, deducted from the results of topical medication, as to which of these stages exists.

If physicians are to save the lives of women from cancer, they must prevent the oncoming of this disease by doing more than has been done in preventing injuries of the neck of the womb in parturition. Lacerations of these parts may unavoidably occur, but many such injuries can be prevented by allowing more time for these tissues to dilate in the first stage of labor. Is it not true that many lacerations of the cervix uteri are provoked by some injudicious use of the obstetric forceps, in time or in force, or by an improper use of podalic version? Nature may and ought to be directed. She ought to be permitted to take her course in this stage of parturition. Bearing-down efforts at this time on the part of the woman, and undue haste on the part of the physician, have done much harm in this direction.

If now any cervical laceration has taken place to within its muscular substance, especially if so deep that the circular artery is severed, a primary union should be secured by appropriate stitching, on the same principle of conduct that the accoucheur always repairs a torn perineum at the time of its rupture.

The cervix will be bruised less, and the presenting portion of the fetal body will more easily be directed into the axis of the obstetric canal, if the patient in the second stage of parturition is placed on that lateral surface of her body towards which the presenting part of the fetus projects.

A primary tracheloplastic operation is easily and quickly done; catgut is the suture material. Primary union is almost certain. But a secondary tracheloplastic operation is one of the most difficult plastic procedures. Failures to some degree are by no means uncommon. The aim, of course, should be to restore the cervix to a normal size and shape, with a normal os externum. This external opening of the womb, if made too small, may lead to painful menstruation; almost surely will it be a cause of an acquired sterility. A restoration to a natural symmetry of the parts is the chief indication of success.

A sharp curetment of the whole uterine cavity is an imperative preliminary surgical step to the operation. Done at the same time, with proper aseptic precaution, it secures relief to the secondary endometritis. No packing of the uterine cavity ought to be done now.

Any pronounced presence of periuterine exudates, evidences of old salpingitis and pelvic peritonitis, with some fixation of the uterus, though not complete, are manifest contraindications to this operation. These conditions must be relieved by rest, by saline purgation, by hot vaginal douches, and by topical applications of ichthyol and boroglycerid, followed, it may be, by a vaginal section (post-uterine), possibly by an abdominal section. It is a dangerous procedure to draw the uterus down, to curet its cavity, and then denude and stitch its cervical walls, unless the peri-

uterine spaces are comparatively free from any secondary inflammatory action. Too often it is that some otherwise clearly indicated intrapelvic operation is brought into disrepute because of its individual misapplication.

Almost every gynecologic operator in these cases has observed at times the great thickening and induration of the cervical lips, with extensive cystic degeneration of the Nabothian follicles. Due normal restoration of the infra-vaginal neck, and proper symmetry of these structures, can in such cases only be obtained by a thorough exsection of both cervical lips. All risks of a stenosed cervix are overcome by the timely use of a cervical glass plug.

Tracheloplastic operations, properly performed in suitable cases, with due regard to asepsis, are among the most satisfactory operations in gynecology, for not only is the local uterine mischief very much bettered, not simply in its primary lesion, but also in its secondary changes. Few gynecologic operations are followed by more pronounced benefits in the general health at large, than is the correction of this evil.

The points I desire to present in this short paper are:

1. How to avoid the undue frequency of this accident.

2. Importance of its early recognition, and at the time of occurrence.

3. Our opportunity to correct at this time the laceration.

4. Ultimate dangers of, especially as to cancer of uterus.

5. Frequency of imperfect results attending tracheloplastic operations: (*a*) want of restoration of normal symmetry of cervix uteri; (*b*) artificial stenosis; (*c*) want of excision of unhealthy cicatricial tissue in bottom of the rent, and, of course, some continuance of local and reflex disturbances.

CHAPTER VI - NOSE AND THROAT

A Rapid Dilation of the Eustachian Tube by Electrolysis, a Factor in Chronic Catarrhal Otitis Media

WITH REPORT OF CASES

BY C. P. LINHART, M. D., COLUMBUS

Not many years ago a patient with chronic middle-ear trouble was told on consulting the family doctor that very little if anything could be done to relieve his condition. Perhaps the advice most generally given was to make a change of climate. This, though indefinite, was usually understood to mean some of the altitudes of Colorado, the sunny climate of California, New Mexico, or some such place.

The prognosis was far from hopeful, the patient being told that the deafness would probably progress, but that it might be delayed by change of climate. Very little was accomplished by local treatment. A story was told me of a clinic in a hospital in one of our large cities, where the physician in charge, a specialist in this line of work, would wait until his patients had congregated in rows on the benches in the out-door department when he would pass down the line with his Politzer bag, place the nozzle against each nose in succession, give a puff of wind and the advice to "come back day after tomorrow" to each one in succession. This story may or may not be true, but it very nearly represents the extent of the treatment for chronic middle-ear trouble not many years ago.

The progress in the treatment of middle-ear catarrh the last few years has kept pace with the giant strides made in other branches of medicine and surgery. Today the Eusta-

chian catheter, which tells us accurately the result of the inflation, with the aid of the Toynbee auscultation-tube has to a great extent taken the place of the less accurate Politzer method.

We know the close relation that exists between the catarrhal condition of the nose and that of the middle ear, and recognize the futility of treating one without improving the condition of the other. In recent years the otologist has shown a keener appreciation of the importance of nasal and nasopharyngeal obstruction and inflammation as a cause of deafness, and recognizes the importance of their removal. A reduction of the membranes and underlying tissues to a normal condition is an important part of the treatment in the routine work of the local treatment of the middle ear by inflation, vaporization and massage.

The chronic condition may have its beginning in the tympanum, with very little evidence of nasal or pharyngeal catarrh, but it is more likely that the later process continues its inflammatory course from the nose and nasopharynx through the Eustachian tube into the middle ear. The functional hypermia of the tubes, a condition found in the early stages of middle-ear catarrh, gradually changes to one of an inflammatory type in which there is an abundant pouring out of round-cells, which by proliferation and by increase in size form an organized exudate. This view is supported by clinical experience, as it is found in a large majority of cases that a temporary improvement in hearing follows inflation, showing that the retracted tympanic membrane and hypermia were largely due to the Eustachian obstruction.

In the earlier stages of the chronic tubular and middle-ear inflammation much may be accomplished in its reduction to a normal condition by inflation to relieve the stagnation from the Eustachian obstruction, and the application of stimulating vapors to promote absorption.

In later stages, however, when fibrous tissue has formed from the exudate, it is often necessary to use bougies to

overcome the obstruction. Bougies of whalebone, metal, and cotton have been used for this purpose with considerable success. Occasionally it is found that treatment with bougies is only palliative, and that instead of removing the obstruction permanently, it only stretches the stricture, which in a short time returns to its former narrow lumen. It is in these particularly obstinate cases that electrolysis by means of the metal bougies, the application being made with the negative pole of the galvanic current, is of permanent benefit.

My attention was called to this method of treatment by Dr Duel of New York City, and it was through his courtesy that I was enabled to master, to some extent, the method of its application and watch its result. While electrolysis has been used for urethral stricture for several years, there seems to have been no methodical application of electric bougies to the reduction of the strictures of the Eustachian tube until Dr Duel, without any previons knowledge of the work done in this line, devised the instruments and method of application now generally used. I have seen no occasion to modify his instruments or change his mode of application, and I will give his description of the use of the bougies.

"A bougie which could be protruded from the tip of the catheter an inch and a half, or more if necessary, has been passed directly into the tympanum in every instance where it has been possible.

"The bougies are made of gold, and correspond in size to Nos. 2, 3, and 4 of the French scale. The smaller sizes are usually used. It probably does not matter so much about the size as that the current should be kept in contact with the hyperplastic tissue long enough for the electrolytic action to take place. The bougie is drawn through a small pure-silver catheter until the oval head fits snugly in the opening at the tip. The other end is connected one and one-half inches from the opening by a delicate handle with the negative pole of the battery.

"The catheter after being carefully bent so that it will

fit accurately in the mouth of the Eustachian tube, is insulated by winding a narrow strip of rubber tissue spirally from tip to ring. This being renewed each time it is used, the catheter and bougie being boiled, cleanliness is insured. In any case in which the tube is to be bougied the nose and nasopharynx should be carefully cleansed with an alkaline antiseptic solution, such as Dobell's or Seiler's, and afterward thoroughly anesthetized." For this purpose a 2 per cent solution of cocain applied with a cotton-tipped probe to the orifice of the Eustachian tube will be all that is required.

Before making the application with the electric bougie the operator should familiarize himself with the exact location of the opening of the Eustachian tube by making an application of the air-douche with another catheter. This will fix the relative positions of the parts more definitely in his mind and aid him in the adjustment of the electric bougie.

The patient grasps the sponge-electrode connected with the positive pole of the battery. The negative pole is attached to the bougie. After fixing the catheter in the Eustachian orifice, the bougie is pushed along until it meets with a definite obstruction. The current is then turned on by means of the rheostat until three or four milliampères are registered. After using a gentle pressure for some time, varying from 20 seconds to one minute, the bougie will usually pass through the stricture with a sensation to the operator something like that of an knife cutting through cheese. The patient will describe it as "something frying or bubbles breaking in the ear." The same sounds somewhat modified can be heard through the auscultation-tube. Sometimes the bougie will slip through the stricture with a little jerk, in which case the patient should be cautioned not to make a sudden movement with the head. The bougie should be passed backward and forward through the stricture until it moves quite freely. It should then be passed on into the middle ear, and if other strictures are found on the way they should be treated as just described.

The bougie should be withdrawn into the catheter before the electricity is turned off.

The battery should have from 30 to 50 volts, and should be supplied with a good rheostat and millimeter. The application and disconnection of the electricity should be made through the rheostat, for a sudden shutting off of the electricity would cause a considerable shock to the sensitive membrane of the Eustachian tube.

The immediate result of the electrolysis is an intense red coloring of the drum-membrane, and a sense of fullness in the ear. On account of the reaction and congestion following, it is well to wait four or five days before making an application with the air-douche. Usually the first inflation will not be as easily made as the second or third. It takes about a week or ten days for the congestion to subside, after which there will be a noticeable difference in the volume of air which passes through the tube into the middle ear.

The advantage of the electric bougie over the others is that, instead of merely stretching the tough fibrous tissue, it dissolves and seems to have a stimulating effect upon the tissues, promoting their absorption. It may be necessary, as will be shown in the report of one of the following cases, to make the application more than once.

The advantage of the catheter over the Politzer method for inflation is that stronger pressure can be used in making an air-douche through the narrower tube, while with the Politzer method a greater volume of air will pass through the larger tube and over-inflate the one ear without affecting the other which may need the douche most.

The chief use of electrolysis is to dilate the Eustachian tube for after-treatment by inflation and vaporization. I feel that I cannot too strongly emphasize the importance of this after-treatment. The progress of middle-ear catarrh, with its consequent thickening and displacement of the delicate structure of the middle ear, is always of long duration; and if the physician can assist in recovering to some extent after

two or three years' treatment, that which has been destroyed by many years' progress of the disease, he shall have accomplished much. The least that can be said in the vast majority of these unfortunate cases is that the progress of the disease may be stopped.

Case 1. K, aged 48 years, complained of impaired hearing for 18 years and noises in his ears for two years. The tinnitus was especially distressing and caused such mental torment that the patient complained of being unable to get his usual rest, lying awake or pacing the floor for hours at a time. The trouble had come to such a pass that he dreaded to go to bed at night. The tinnitus was worse in the left ear. On examination it was found that the chronic catarrh had reached the sclerotic stage in the left tube and middle ear, the tube being wide open and the drum-membrane thickened and opaque. The right tube was somewhat narrow, the drum-membrane slightly contracted, and the ear difficult to inflate. A functional test showed the lower tone limit 34 v. s., whisper right ear 28′, left 36′. There was a history of nasal catarrh and susceptibility to colds, but at the time of consultation the nose was in fairly good shape. Inflation with the vapor of iodin, menthol and camphor by means of the Dench vaporizer was practiced for three months without much improvement. An application of electrolysis with a No. 3 (French scale) bougie was tried in the right ear. There was a stricture about a quarter of an inch long in the cartilaginous portion of the tube, through which the bougie was passed with slight pressure. No other obstruction was found, and the bougie readily passed into the tympanum.

This was followed by a marked improvement in hearing in the right ear and a lessening of the tinnitus in the left. In six weeks another application of electricity was made in the right ear. This was followed by improvement in hearing in the right ear and a lessening of the tinnitus in the left. After nine months' treatment with massage and vaporization, the tinnitus had almost entirely disappeared, and a test showed an improvement in hearing-distance for the whisper to 48′ for each ear, and the lower tone limit 26 v. s. It has now been about a year since the patient was discharged, and there have been only slight recurrences of deafness and tinnitus on catching cold, which disappeared with the acute attack.

Case 2. B. Trouble with hearing began in 1893 after a severe attack of the grip. Hearing was gradually growing worse, he complained of being very susceptible to colds, and during these attacks the deafness was much increased. There was hypertrophic rhinitis, with the inferior turbinals touching the base of the nose. A functional test showed lower tone limit, right 64 v. s., left 512 v. s., acoumeter right 22′, left 5′; forced whisper right 28′, left 15′. There was an almost complete stenosis of both tubes.

The lower edges of the turbinals were cut off so as to produce free drainage, and the condition of the nose improved before the treatment of the ears began.

Inflation of both ears with the catheter was practiced for three months without any appreciable effect. Electrolysis was then applied to the right ear with a No. 2 bougie, French scale. A firm obstruction was encountered about three-quarters of an inch from the orifice, and after an application for five minutes without making any advancement the bougie was withdrawn. On the next application of the air-douche, a very slight stream of air passed into the tympanum on this side. An application was then made with the same size bougie to the left side with about the same result. These applications were continued on alternate ears in varying periods from ten days to a month, until six applications had been made in each tube. Only once in all this time was the bougie successfully passed into the middle ear, yet each time the drum-membrane was reddened, and the patient had a sensation of fullness in the ear. The lumen of the tubes gradually opened under this treatment until a strong current of air could be passed into each middle ear with the Dench vaporizer, so that the vibrations of the drum-membrane could easily be heard through the auscultation tube. The lower tone-limit was reduced to 64 v. s. for each ear, the hearing distance for the acoumeter increased to 32″ right ear, 18″ left ear; whisper 48′ right and left.

A remarkable thing about this case is that the bougie was successfully passed into only one ear and that but once, which was probably on account of the narrowness of the bony structure of the Eustachian tube, yet the effect of the electricity seems to have been as good as if the bougie had entered the middle ear each time.

These two cases have been selected to illustrate my remarks because they are somewhat out of the ordinary run.

Yet in spite of the difficulties met and the unfavorable outlook in the beginning they serve to illustrate the result of treatment by electrolysis as well as could the more ordinary ones.

In the first case there was stenosis of the right tube only, while there was a sclerotic condition on the left side accompanied by distressing noises. Treatment was followed by over 50% gain in hearing-distance for the right side, a slight gain on the left, and an almost complete cessation of tinnitus on the left side.

In the second case there were six applications of the bougie made in each tube. On account of the narrowness of the bony canal the smallest bougie could not be passed into the middle ear excepting once, yet the result was to open each tube sufficiently to allow good inflation, and after one year there was an improvement of 100% in hearing-distance for both ears.

Tubal obstruction is present in the early stages of chronic hypertrophic middle-ear catarrh, and is contributive to the further advancement of the disease within the tympanum. This obstruction to the free ventilation of the middle ear should be removed as soon as possible. The electric bougie is at least as easily applied as any other form, and the results are permanent. The removal of obstructions in the Eustachian tube is only one factor in the treatment of chronic catarrhal *otitis media.* Inflation, to massage and readjust the delicate structures of the middle ear, with the application of stimulating vapor to promote absorption, must be practiced persistently and patiently for a long time.

DISCUSSION

Dr Chas. J. Means, Columbus: I was very happy to hear the Doctor read his paper, for it certainly is a good one. Whether we be general practicians or specialists we all see these cases of middle-ear catarrh, and we are certainly eager to grasp at anything which will aid us in their relief. These desperate cases, such as the essayist has described, only a few years ago were allowed to go drifting from one doctor to another, and usually dismissed with the

idea that nothing could be done for them. The essayist says that the treatment he suggests is not a cure-all, nor does he claim that it is a specific for this trouble, but he has certainly shown us that it has done a great deal of good for the cases which he reports. He has had quite an experience in this line, and has reported in this paper only a few out of the number treated. Then again Dr Duel of New York has treated a number of cases, and has given us a report of fifty patients which shows that relief has been almost universal. They do not report cures, but a great deal of improvement in almost every case, especially in those who have continued with them until they received the full benefit of the treatment. We know this method of dilation has been used successfully in urethral strictures, and those people who have said that urethral electrolysis has been a failure have been those who have not used it correctly; this applies just as much in strictures of the Eustachian tube. They probably did not have an instrument that was long enough, and they did not enter the tube past the strictures. The bougie is limited to one inch usually, but this oftentimes does not reach the strictures. I understand the Doctor often allows the tube to go entirely into the middle ear. If this is done properly I believe it will certainly be a great boon to us in the treatment of middle-ear catarrh. Of course it must be followed up by the massage and vapor treatments, and he must also carry along with it treatment of the nose and pharynx. I am very glad to hear this excellent paper, and I expect to give the method a trial in my practice.

CHAPTER VII—STATE MEDICINE

How the Medical-Practice Act in Ohio can be Most Efficiently Enforced

BY N. R. COLEMAN, M. D., COLUMBUS

President of the Ohio State Board of Medical Registration and Examination

It is of the utmost importance that the medical profession of the state should be familiar not only with the law regulating the practice of medicine, but also, of right, with its administration and with the results it has accomplished and those it is now in a fair way to obtain. While the Ohio State Board of Medical Registration and Examination is nominated the agent in executing the provisions of the law, the import of the law places the duty upon every reputable physician to see that violations of these provisions shall be efficiently dealt with. It is only by the physicians being in touch with the board, and the board with the physicians, that the prompt and effective operation of the law can be secured. We feel confident that if the physicians and the people generally of the state were better informed relative to the law, its intentions and workings, that there would be a great diminution of adverse criticism and unnecessary comment. In order that you may more fully comprehend the magnitude of the work that has been done, and is being done, it will be necessary first to make a statement of the number of certificates that have been issued and of applications rejected in the past year, and also of the entire number from the enactment of the law to the present time.

CERTIFICATES ISSUED FROM JANUARY 1, 1900, TO JANUARY 1, 1901

From January 1, 1900, to January 1, 1901, the number of certificates issued to graduates in medicine was 672. To legal practicians (ten years' practice previous to May, 1885)

2; to graduates in medicine and surgery, on examination, 6; applications rejected to graduates in medicine and surgery, 26; certificates rejected to graduates on examination, 3; certificates revoked, 2. One of the cases revoked by the board was appealed to the Governor and Attorney General, where it is now pending. There were 10 certificates issued to midwives on examination, and 3 midwives have been rejected on examination.

ENTIRE NUMBER OF CERTIFICATES ISSUED

The entire number of certificates issued since the enactment of the law, February 27, 1896, to May 1, 1901, are: to graduates in medicine on diploma, 9,472; to graduates in medicine on examination, 13; to legal practicians, 713; a total number of 10,198. There have been during that time 218 applications from graduates in medicine rejected; from legal practicians 227; on examination 21; total number of rejections 466. There have been 11 certificates revoked. Certificates have been issued to midwives, by the Probate Judges, 290; to midwives on examination, 36; a total of 326. The number of applications rejected, on examination of midwives, 10.

It is impossible to state, accurately, the number of certificates now in force in the state, on account of the inability to obtain the number of deaths that have occurred, and the number of removals from the state since the passage of the law. The law provides that the Probate Judges of the several counties shall make a report of all deaths and all removals, on or before December 31 of each year, which they have expressed a perfect willingness to do; but they are unable to obtain the necessary information, as there is no provision whereby they can be informed of either deaths or removals. It is not a defect in the law, as such work does not come within the purview of this act. This information could be secured by each county medical society appointing a committee to report all deaths and removals to the Probate Judge of its county.

Under the law now in force, which requires all those who receive certificates to undergo an examination, except the matriculants in the state who have been exempt by the amendments to the law, April 14, 1900, it is fully believed that the work will be greatly simplified and rendered much more satisfactory in every respect.

REPORT OF THE OHIO STATE BOARD OF EXAMINATION FOR ENTRANCE TO MEDICAL COLLEGES

Before giving the report it may not be inappropriate to quote the law relating to the preliminary education required of those who seek admission to medical colleges. The law reads as follows: "In the application, as a condition of admission to the examination, he shall produce either of the following credentials: a diploma from a reputable college granting the degree of A. B., B. S., or equivalent degree; a diploma from a normal school, high school, or seminary, legally constituted, issued after four years of study; a teacher's permanent or life certificate; a medical student's certificate issued upon examination by any state board; a student's certificate of examination for admission to the freshman class of a reputable literary or scientific college; or a certificate of his having passed an examination conducted under the direction of the state board of medical registration and examination by certified examiners, none of whom shall be either directly or indirectly connected with a medical college."

CERTIFICATES ISSUED

The number of certificates issued on credentials was 191. The number of certificates issued on examination was 25. The number of certificates issued on examination, with conditions, was 56. Total number of certificates issued, 272.

APPLICANTS EXAMINED OCTOBER 26 AND 27, 1900

The number of applicants passed without conditions	25
The number of applicants passed with conditions	56
The number of applicants failed	27
The number of applicants withdrawn	4
Total number examined	112

The applicants who failed were in the following branches: English Grammar, 14; Spelling, 13; Rhetoric, 49, including 28 who were conditioned without examination; Physics, 39, including 10 who were conditioned without examination; Botany, 28, including 6 who were conditioned without examination; Algebra, 57, including 24 who were conditioned without examination; Latin, 62, including 36 who were conditioned without examination; Composition, 15; U. S. History, 69, including 1 who was conditioned without examination; Geography, 69; Arithmetic, 32, including 4 who were conditioned without examination.

The whole number examined was 112, and of this number 25, or a little less than 25%, passed the examination; 56, or a little over 50% were conditioned; and 27, or a little over 25% failed to pass the examination. It is not probable that all of the 56 who were conditioned will be able to remove their conditions when they come before the board for the next examination, which is required before entering upon the second year's work of a medical college.

It is reasonable to believe that those who applied to the Ohio State Board of Examiners for entrance to medical colleges were not inferior in qualifications to those who had applied for admission to medical colleges for many years past. Yet the writer has no knowledge of so large a percentage having ever been rejected, in the past, by the medical colleges. The reasons for so large a number having been rejected by the state examining board for entrance to medical colleges is obvious.

1. The law now in force, defining what the minimum entrance qualification for medical students shall be, went into effect within six months after its passage, and before those seeking admission to colleges had sufficient time to meet its requirements.

2. Many of the circulars of information, issued by the medical colleges of Ohio, did not contain a full statement of the requirements under the existing law. In fact some of the

catalogues were issued before it was decided what the examination should embrace.

3. The minimum entrance requirement in force in Ohio, prior to the enactment of the present requirements, was that of the Association of American Medical Colleges. It is possible that that requirement was not as strictly observed and enforced as it should have been: hence another reason why there was not so large a percentage of applicants for admission to medical colleges rejected as under the present law.

4. At the time of the passage of the law, there were five national minimum entrance requirements and, in addition, nearly every state had a given standard, making almost as many standards as there are political divisions in the country. Under such conditions it was utterly impossible for the student to know which standard to adopt.

In view of these facts, would it have been wise or just to have enforced the law too rigidly, before those seeking a medical education, or the medical colleges, were fully informed relative to the provisions of the law? Such a course, in all probability, would have rendered the law obnoxious to the public, and thereby led to its repeal or to its emasculation to such a degree as to have rendered it inoperative.

It has been thought by some, as evinced by the resolutions which have been passed by several of the medical societies, that the board had transcended its legal authority by extending a limited leniency to those seeking a medical education in this state. Therefore it will be well to quote the law which relates to the examination, which is as follows: "Or a certificate of his having passed an examination *conducted under the directions* of the state board of medical registration and examination by certified examiners." It is very clear that the board has a legal right to exercise its judgment relative to the examination. It was deemed best by the board to enforce the law gradually; and it would seem as though its judgment was correct from the results of examination which has been held.

It must not be forgotten that one of the credentials specified in the law is, "a medical student's certificate issued upon examination by any state board." Such certificate, when presented to the Ohio State Board or any medical college in this state must be accepted as proof of the applicant's preliminary education. There are but three or four state medical boards that issue such certificates, but some of those that do, have a standard very much below a four-years' high-school course. It is not likely that many of these certificates will ever be brought into the state, but, in case they should, they would have to be accepted by the colleges and the Ohio State Board. The standard of the examination of those who do not possess the credentials required by law, can be raised to the four-years' high-school standard whenever the profession of the state may desire it, as the board has the legal right and power to change the standard. The history of medical legislation shows that no state in the union has ever made such rapid progress in raising the standard of entrance qualifications to medical colleges as has our own state within the past year. At present no state has a standard superior, and very few equal, to that possessed by Ohio.

The attention of the medical profession for many years past has been given principally to raising the standard of technical to the neglect of preliminary education. With the enactment of the law defining the minimum scholastic attainments for entrance to medical colleges, came the first substantial and permanent advance for the higher education of physicians that has ever been made in the state. It is a great innovation, and will require a little time for those to whom it applies to adjust themselves to it without injustice or hardship.

In the opinion of the writer, there will be few, if any, applicants before the board of examiners for entrance to medical colleges at the end of two or three years, as those desiring admission to medical colleges will have had time to equip themselves with the required credentials.

INVESTIGATION AND REVOCATION OF CERTIFICATES BY THE BOARD

Under Sec. 4403c of the law, the Board is empowered to revoke certificates of any person guilty of fraud in passing the examination, or guilty at any time of felony or gross immorality, or addicted to the liquor or drug habit to such a degree as to render him unfit to practice medicine or surgery. When a charge is filed for the revocation of a certificate upon any of the grounds just enumerated, the party so charged is notified of the same and required to appear before the Board at a given day and hour and show cause why his certificate should not be revoked. As a rule, the accused immediately employs the best attorney in his community, and the attorney at once demands a copy of the charges and all evidence filed against the accused, which is always promptly furnished, and is in strict accordance with law. The Board always demands of the one filing the charges to furnish all the evidence within his power to sustain his charge. The defendant immediately, in connection with his attorney, sets about to obtain evidence to establish his innocence. The case is set for hearing, and the accused, accompanied by from one to three lawyers, comes armed with from 25 to 100 affidavits and petitions signed by 200 or 300 people; and the Board is necessitated to examine each and every affidavit and petition in order that no injustice may be done to the accused. After all the evidence is in upon both sides, the argument commences, which may last any time from a half-hour to a half-day. Then the Board takes the case under advisement, and if they are not satisfied with the character of the affidavits the case is continued, and more affidavits are secured upon each side. And now comes the most difficult part of the trial, as many of the parties, who had made affidavits against the accused, make affidavit equally strong in his favor and renounce their previous affidavit, manifesting a degree of immorality and recklessness hard to comprehend by those who have never had experience in work of this character. Again the defendant will secure a large number of affidavits showing that perhaps

nearly every one of those who filed affidavits against the accused were immoral, unreliable, and irresponsible citizens of that community. When this stage is reached, the Board is necessitated to send its attorney into that community to take depositions of all the parties, on both sides, who have filed affidavits. The case is thus prolonged by the attorneys, and finally, after months, the Board again takes the case under advisement, and, by a thorough investigation of all the testimony filed on both sides, and of all the verbal testimony taken down by the stenographer, weighing with extreme care the evidence upon both sides, it passes upon the merits of the case. The Board feels in all such cases a deep responsibility, for it would be a very serious matter to take away from a man, unjustly, the means of maintaining himself and possibly a family. On the other hand it is a very serious matter to allow a physician to continue in all the rights and privileges vested in him under the law if he is an irresponsible and dangerous man in his profession.

When the Board has revoked a certificate, the defendant has the right to take an appeal before the Governor and Attorney General, and they have the power either to sustain the Board or over-rule its findings. During the time a case is pending before the Governor and Attorney General, judgment is arrested, and the party charged has the right to continue his avocation unmolested. I mention this latter fact for the reason that the Board has been criticised by those residing in the community from which the accused came, for allowing such a person to continue in practice. The Board could not further enforce the law until a decision had been rendered by the Governor and the Attorney General in the case. At times there may be reasonable assurance that some cases are filed through selfish motives or jealousy of competitors. This is another reason why the Board has to proceed with extreme caution, for after months of careful investigation and earnest research in every feasible channel, the Board has reached the unpleasant conclusion that such has been the case. When this is found to be true, the Board

cannot be expected by those filing the accusations to be a party to such conduct, or that it will lend its aid in harming an honest competitor. More than once such cases have been brought to the attention of the Board and bitterly contested upon both sides, but when the true status of the case was determined it was promptly dismissed.

LETTERS RECEIVED FROM THE VARIOUS EXAMINING BOARDS

In order to ascertain, if possible, the measure of success in prosecuting infractions and violations of the medical laws that obtained in the other political divisions of the country, I wrote on March 5, 1901, a letter to each Secretary of 48 medical examining boards, asking the following questions:

1. What difficulties, if any, do you have in enforcing the medical laws in your state?

2. Do you have the efficient and determined cooperation of the physicians and medical societies throughout your state in enforcing the law?

3. Do you have any trouble in getting violations of the law before the courts?

4. In your opinion, are the medical laws in your state justly and efficiently administered by the courts?

5. Where would you place the blame for these and such other difficulties as may exist?

6. How many cases have been prosecuted for infractions and violations of the medical laws in your state from January 1, 1897, to the present time?

To the answers to a few of these letters I wish briefly to call your attention.

Illinois reports no difficulties when the cooperation of physicians and medical societies is obtained, which is in over 50% of the cases.

The lower courts and juries show a tendency to side with the defendant.

"Hundreds" of prosecutions have been made in the past four years, and Chicago is said to be free from all irregular practicians.

Kentucky has to contend against a hostile public sentiment engendered by ignorance on medical matters, especially amongst the other so-called learned professions, and by the bickerings of physicians amongst themselves.

The courts have shown themselves partial to osteopathy.

No record of prosecutions, though irregulars have mostly left the state, and necessity for prosecutions is constantly diminishing.

Connecticut has no serious trouble in enforcing her medical law; and it is unique in the provision that in every county of the state is a county officer, a lawyer, whose specified duty it is to see that the laws relating to public sanitation, registration of vital statistics, and the medical-practice act are executed. A number of convictions have been obtained. This efficiency is attributed to said county officers, as before their appointment nothing could be done.

South Dakota reports the cooperation of physicians, but finds that cases going to juries are not considered on their merit.

Five cases have been prosecuted in the past four years.

Colorado has no difficulty in enforcing the law, because it is so lenient that almost any one can procure a license to practice, and any violations of the law are so flagrant that there is no trouble in convicting offenders.

The physicians do what they can with the law that they have. No record of prosecutions.

Delaware reports inability to get Attorney General to prosecute or investigate reported cases; and that a lamentable indifference prevails amongst the profession and general public. No prosecutions have been instituted.

Indian Territory reports that the officers refuse to enforce the law; and that the physicians are indifferent, so, of course, the courts are inefficient.

Three or four cases have been prosecuted.

South Carolina cannot get infractions of law reported because physicians and patients seem afraid of the cry "per-

secution." The courts are not entirely impartial to the reception of prosecutions. The only case prosecuted was cut short by the grand jury refusing to bring in a "True Bill."

Idaho finds difficulties in securing enforcement of the medical law, chief of which is the reluctance of physicians to make formal complaint against offenders of the law. The societies render assistance to the board, though individual physicians do not. The courts are apt to give the quacks the benefit of any and all technicalities. The absence of a clause giving the informer half the fines collected is regarded as a defect in the law.

Two cases have been prosecuted since April, 1899.

Nebraska encounters a difficulty in the hesitation shown by physicians to sign a complaint and press a prosecution against quacks, and assigns as a reason for this, that the newspapers are usually hostile to the profession, so the physician taking such a step lays himself open to their abuse.

While the courts receive such cases, any technicality is enough to free the accused.

Probably fifty suits have been instituted by the board in the past four years.

North Carolina has very little difficulty in enforcing the law when evidence is sufficient, though considerable effort is required to get the solicitors and grand juries to present the cases in court.

The medical societies and the profession at large are very arduous and diligent in their cooperation in bringing the guilty ones to justice. The courts administer the law fairly and justly. Prosecutions have been made, though the number is unknown.

Mississippi has no difficulty when physicians are bold enough to report violations. The societies lend assistance.

The courts administer the law efficiently, but the physicians are adverse to notoriety from reporting violations of the law. Several prosecutions have been made.

Tennessee reports great difficulty from the indifference of both the medical profession and the prosecuting attorneys.

The medical societies do not render aid, and the courts are not favorable to the law. Not more than a dozen prosecutions have been made since January, 1897.

Michigan has some trouble in getting the officers of the law to actively prosecute violations of the medical-practice act; but the profession and societies cooperate with the board, and if it were not for the elective positions of the prosecutors there would be but little difficulty in enforcing the law.

Since September, 1899, 25 prosecutions, with 20 convictions, have been carried out.

New Mexico finds the greatest difficulty in securing evidence. The profession is alive to the advantages of the law, but the public is indifferent. The courts administer the law with efficiency.

Twenty cases have been prosecuted.

California reports that witnesses are usually unwilling to appear against irregular practicians, and it is very difficult to obtain evidence. The profession is not quite so active in giving assistance as formerly, but some societies are doing good work. The courts are efficient. Thinks that the public likes to be swindled; and if they wished the quack to go, he would promptly disappear.

Kansas has great difficulty in enforcing the law because of ambiguity and imperfections in the statute. The profession of the state has been indifferent, and permeated with quackery. Politics has prevented the execution of the law; and the general public is indifferent to its provisions. Three prosecutions have been attempted.

New York has no great difficulty in enforcing the law when proper evidence is adduced. In many counties the work of prosecuting offenders is carried on by a paid counsel of the county medical society. A public sentiment has developed favorable to the law. Political favor has in

a few cases stood in the way of prosecutions, but ultimately justice has been meted out and the offenders brought to terms.

Iowa finds the difficulties are a lack of cooperation on the part of the state and the county attorneys, whose duty it is to prosecute. There is timidity on the part of physicians to assist in getting evidence, and a lukewarmness on the part of county attorneys.

The District Judges twice declared the law unconstitutional, but the Supreme Court reversed their decisions and sustained the law.

Maine finds that its law is deficient in means to enforce its provisions. The legislature loves the quack. The county attorneys do not like to attack the cases presented to them. One attorney said, "Your law is not good for anything." The physicians lend but lukewarm cooperation.

No cases have reached the courts. One party paid fine without contesting, and in another case the grand jury failed to indict.

Thinks the courts would sustain the law.

No cases have been prosecuted since January, 1897.

NUMBER OF PROSECUTIONS REPORTED IN LETTERS RECEIVED FROM BOARDS

Number of prosecutions reported in letters received from boards: Illinois, "hundreds;" Nebraska, 50; Michigan, 25, (since September, 1899); New Mexico, 20; Tennessee, "not over twelve;" S. Dakota, five; Indian Territory, three or four; Kansas, three; Idaho, two (since April, '99); S. Carolina, one; Mississippi, "several;" Connecticut, "a number;" Colorado, unknown; Kentucky, unknown; Iowa, unknown; North Carolina, unknown; Delaware, none; Maine, none.

I think that the letters received establish the fact, beyond a reasonable doubt, that in the states in which the boards received the aid of the medical profession, and the courts construed and administered the laws justly, there is least difficulty in enforcing the medical-practice acts.

We will now turn to Ohio and see how the work accomplished and difficulties encountered compare with those just enumerated.

From January 1, 1897, to May 1, 1901, there have been 181 prosecutions. Of that number 71 have been convicted; 18 acquitted; 23 failed of indictment before the Grand Jury; 6 indictments nolled after defendant had complied with the law; 16 dismissed without trial; 22 cases now pending in the courts, and 25 cases not tried. The cases not tried were those in which defendant left the state either before an arrest could be made, or forfeited bond, or cases in which the Prosecuting Attorney did not have the case called for trial.

In view of the foregoing it would appear that Ohio has instituted more proceedings against violators of the law than all of those states reporting, unless we might except Illinois, from which state came the rather vague statement of "hundreds."

DIFFICULTIES MET WITH IN THE PROSECUTIONS OF VIOLATIONS OF THE MEDICAL LAW

At first glance it might appear that, in the number of cases above enumerated, it was a very small matter to make the arrests and follow them up with the necessary amount of legal service, but there are many difficulties to be confronted in prosecuting infractions and violations of the medical law that are not found, perhaps, in enforcing any other law in the state. One of the greatest difficulties is encountered in securing evidence. There is perhaps no form of misdemeanor in which it is more difficult to secure competent evidence. The physicians of a locality, to whom we must look for aid in securing evidence upon which to base a prosecution, very often refuse aid to the extent even of giving the names of patients to whom service has been rendered, or any other information pertaining to the case, because they fear that if they are known to have given information which may lead to arrest and prosecution of offenders of the law, it might injure their practice. Such assumption on the part of physicians is unfounded, and

means that such individuals do not fully understand the situation or the law, or that they are cowardly by nature. They have nothing to fear because the law is on their side, and in the great majority of instances their names need not be given publicity in any shape, form or character. It has been suggested, in order to overcome this difficulty, that the Board employ detectives to secure the evidence, but experience has taught us that the evidence of detectives is not taken very kindly by courts or juries, and in nearly every instance it prejudices the case against the prosecution. This destroys the usefulness of detectives in such cases, without considering the great expense their employment would entail, which is a matter to be seriously considered, as the money at the command of the Board is a special fund and has to be husbanded with great care at all times.

Another point, it is very difficult for the attorney or secretary of the Board to go to any community and gather up evidence from strangers who have been treated by illegal practicians unless aided by the local physicians, and this aid is often absolutely refused. It is safe to say that in nine cases out of every ten a local physician can secure facts where a stranger would utterly fail, for the reason that any one residing in a certain section can always obtain information without making public his object in so doing, while if the secretary or attorney for the Board were to appear in a strange community they and their business would soon be known, and just as soon would every mouth be closed. There are cases in which the defendant waives examination and is bound over to the grand jury, and the case is then ignored by the grand jury because the prosecutor takes no interest, or because the grand jury regards the enforcement of the law as unimportant.

We find great difficulty in some cases, after an indictment is returned by the grand jury, in having them brought to trial because of frequent postponements at request of defendant and by consent of the prosecutor. Over such procedure the Board has no control, and must simply abide

by the results. However, as the law is becoming better understood and also the intent of the same, we find less difficulty in the prosecution of cases. Still we must not be unmindful that no matter who the offender against the law may be, he will always have some one more or less friendly to him in every community, who will doubtless influence the case in the way of the testimony that could be obtained. All these things have to be carefully considered in any given case; and, with all the care that can be exercised, the results many times do not seem to correspond with the evidence that apparently was available at the time the arrest was made. One of the most aggravating difficulties that we have to encounter in any case is the remitting of fines by the court after the defendant has been convicted. It does appear, after an individual has been convicted by a jury, and a fine assessed, that the court has transcended its power in remitting same. We are informed that such action is not warranted by law, and the results of it, as I shall hereinafter show, are very prejudicial to the successful administering of the law.

CASES CITED

In order that you may more fully comprehend the effect of the procedures which have just been enumerated, we may be permitted to cite a few cases. The first one to which we call your attention will be denominated case A. In 1896, a short time after the law went into effect, an application was made for registration, the applicant swearing that he was a graduate of a given college. On examining the diploma accompanying said application, a suspicion was aroused that the name had been changed. The secretary at once visited the college from which it was alleged the party had graduated and it was found that no one of the name on the diploma had ever been graduated at that institution. The matter was brought to the attention of the grand jury, which was then in session. An indictment was returned, but before a warrant could be served the party left the state. The case has never been tried, although the prosecuting attorney has been repeatedly requested to set the case for hearing. This same party has registered in another state, and the medical board of that state has instituted legal proceedings against him for fraudulent registration.

Case B. The party was arrested, tried and convicted by a jury. The fine imposed, if my memory serves me right, was $40, which sum, in connection with the costs, was promptly remitted by the judge. This offender became so emboldened with the great success achieved in court that the Board was necessitated to arrest the same party four times with varying results. On the second arrest the party was acquitted, on the third arrest was acquitted by a jury, and on the fourth arrest was fined $90 and compelled to pay the fine and cost, but did not leave the state until after the Board had the nostrum used by this violator of the law analyzed, at considerable expense, and the contents made public, showing that it was absolutely worthless.

Case C. This offender was arrested in a certain locality, prosecuted, convicted, fined and the fine paid. He went to another county, was arrested, convicted and fined pretty heavily, and the fine was again paid. Within some three days after this last trial there was another warrant sworn out for this same party and the authorities refused to serve it, as the offense was committed prior to the time of the last offense for which the party was convicted. We are informed that there is absolutely no law for such a procedure, yet the Board is helpless.

Case D. The Board received information that a man to whom a certain certificate had been issued had been guilty of the heinous crime of producing an abortion. Complaints were filed with the Board from as good citizens as resided in the state of Ohio, and by those who absolutely knew the facts. Thereupon the Board notified this party to appear before it, at a given time, and show cause why his certificate should not be revoked. The case came on for hearing before the Board, and that body was fully convinced that the man was guilty as charged, yet the Board did not feel as though it had sufficient power, being only a quasi-judicial and administrative body, to revoke the certificate unless the party charged with the crime was convicted by the courts. A highly responsible citizen of the state went to the prosecuting attorney of the county and plead with him to consent to bring the case before the grand jury, proffering to swear out the warrant himself; informing the prosecuting attorney that the Board, in his opinion, had sufficient evidence upon which to indict the individual. The prosecuting attorney refused to take the case before the grand

jury, and I am pleased to say that that officer is not filling that highly responsible position at this time.

In two of the large cities of the state it has been almost impossible to bring the offenders of the law regulating the practice of medicine to justice, from the fact that in many instances the cases could not be gotten before the grand jury, or, when they were taken before that body and indicted, could not be brought to trial on account of indefinite postponements; and in those cases which were tried and convicted, the fines were either remitted or never collected. It has been far more difficult to prosecute cases in large cities than in small towns or in the rural districts, as there are so many avenues by which the offenders of the law can evade prosecution.

We are pleased to say that there are many of the courts in the state where the service is all that could be desired, where the officers are willing and efficient to a notable degree, and discharge their duties faithfully and efficiently at all times and under all circumstances, and in such counties and cities there is no difficulty in enforcing the law. There is one case to which I particularly wish to call attention. A man was arrested for violating the law regulating the practice of medicine, and when he came to trial it was found that he had not only violated the law regulating the practice of medicine, but he had deceived the individual to whom he had rendered service, and thereupon he was tried for the more serious crime, that of obtaining money under false pretenses. He is now serving a term in the Ohio Penitentiary.

In every locality in which the court has apparently failed to perform its duty in prosecuting the cases that we have brought before it, it has led to most serious consequences, as pretenders, imposters, and swindlers seem to have an impression that in such locality their license is enlarged to commit their nefarious depredations upon suffering humanity, and the result is that infractions of the law there become numerous to a notable degree. Compe-

tent judges of the law have said: "The violation of the laws and the failure to punish the violators in any country, have evidently been the means of pushing civilization backward instead of forward, and the rising generation has an inheritance of this kind confronting them. The condition of society has reached such a stage that citizens have become hardened, but are at last realizing the fact that men may commit crime with impunity. The failure to enforce the law by judicial tribunal tends to educate members of society that the laws may be violated with impunity. The failure of those vested with the power and authority to perform their sworn duties has weakened and undermined the power of governments. The citizens of this state are taxed to protect them from criminals and for the prosecution of criminals, and if they do not get protection, then the government which has taxed the people fails to do its duty. When those functionaries with power and authority, whether judicial or executive, fail to do their duty it tends to increase crime and at the same time decreases the respect for the law. The failure to prosecute on any particular line or any particular class of law violations is to a certain extent responsible for most serious results in society." While education of every kind for the last quarter of a century has progressed with lightning-like speed, it is a sad reflection to think that morality has not made the progress that might have been expected. It may appear like a reflection upon those who have in charge the teaching of rectitude and good morals to say that crime has increased almost in the same degree as intellectual development has progressed.

HOW CASES SHOULD BE REPORTED BY LOCAL PHYSICIANS

If a case of violation of the medical law occurs in any county the matter should be reported to the secretary of the State Board of Medical Registration and Examination at once, or at least as soon as information upon which an investigation may be based can be furnished.

This information should consist of the name of the party treated, date or dates of treatment, and fee paid or

charged for the same, together with the names of the parties who can testify to the facts in the case, also as much detail concerning the methods and remedies used by the accused as is possible.

Upon receipt of the information, if the same is complete, the secretary will make affidavit and forward it to the court in which it is desired to try the case, have the warrant served and the case set for hearing, at which time the attorney for the Board will be on hand to conduct the prosecution.

In case complete information, as mentioned above, cannot be secured, the case should be reported to the secretary, giving as much information as possible, when it will be investigated by the secretary or attorney at as early a date as possible; it being the policy of the Board to investigate such cases after a number are reported from the same section of the state, thus saving a considerable sum in traveling expenses, which is a matter not to be ignored at any time.

In case of emergency when the law has been violated and the party is likely to leave the locality or the state, the secretary gives such cases immediate attention.

By following the method above set forth the physician, medical society, or incorporation making a complaint need not be known in the case in any way, for the prosecution will be taken entirely in charge by the secretary and attorney for the Board.

The members of the Board and the secretary are at times constrained to believe that some physicians have an idea that when the medical law was passed that there would be no more attempt on the part of impostors, vampires, quacks and mountebanks, to swindle the people of the state. Such an idea is Utopian and fallacious for the reason that there can be no law enacted which cannot be violated, and as long as they do exist people will violate them. The most stringent laws have been enacted for the prevention of murder, rape, and theft, yet it does not prevent those

who are inclined to commit the offense. Even burning at the stake will not deter individuals from committing an act similar to that for which the victim was burned. So long as laws are in existence for the protection of the people from imposters, pretenders and swindlers, so long will they be violated, and the law regulating the practice of medicine does not differ from other laws in that respect; and it will require at all times constant attention in each and every county in the state, as designing persons are ever ready and watching every opportunity to impose upon a community. The world cannot be reformed by the use of the policeman, constable or sheriff. Such forces can only hold evil-doers in restraint, but a true reformation has to be brought about by other forces and influences.

We are led to believe that there are certain members of the profession who have the idea that the Board and its secretary are the only persons responsible for the efficient enforcement of the medical law. Such an idea is absurd, as the law never contemplated such a thing. The members of the Board and the secretary are not omniscient or ubiquitous, therefore they cannot be in all parts of the state at the same time, neither can they from their locations observe the movements going on in a population of four millions of people.

In order to more fully qualify the statements I have made, permit me to quote from Section 4403g of the law: "The secretary of the State Board of Medical Registration and Examination is charged with the duty of enforcing this act. If he have knowledge or notice that the act has been or is being violated, he shall investigate the matter, and upon probable cause appearing, shall file a complaint and prosecute the offender. It shall be the duty of the prosecuting attorney, when requested by such secretary, to take charge of and conduct such prosecutions." In quoting from another part of Section 4403g we gain still further information to lead us to believe that the secretary alone is not the only one who may file charges relative to infrac-

tions or violations of the law. "Such fines when collected shall be paid one-third to the person, corporation or medical society making the complaint or furnishing the information." It is very evident that the law does not bar any citizen of the state of Ohio from making complaint of any violations of the law regulating the practice of medicine. The law differs from the most of our laws, in that the execution of its provisions is placed in the hands of a central board; whereas it is more usual that laws are enforced by officers in every locality; having marshalls, sheriffs, constables and policemen ever on the alert to apprehend violators of the same. The Board, having great difficulty in enforcing the law in the large cities, appointed additional attorneys, one in Cleveland and one in Cincinnati, and we now feel confident that better results will be attained. For when we send an attorney to those large cities they seem to have great difficulty in bringing these cases before the courts.

I may be permitted to further state that when the attorneys, courts and people generally of the state become more familiar with the law and the intent of the same, a great deal more can be accomplished than has been, or is being accomplished at the present time. We believe that there is no state in the union which has a law superior, and perhaps none equal, to that possessed by Ohio for the regulation of the practice of medicine. It is as efficiently enforced and has accomplished the end for which it was designed to as great a degree as was possible under the conditions that existed and still exist. With the aid and support that our law should receive from the physicians and courts of the state, it will accomplish all that could reasonably be expected of such a law. And it is the duty of every physician who respects himself and his profession to help create a sentiment in favor of medical legislation. Because one does not fancy certain features of the present law, is no excuse for indiscriminate denunciation of the whole law. The most perfect statute ever framed would fail of its

purpose without an enlightened public sentiment to support it. The enforcement of the law in this state has been as thorough as in the majority of states having similar legislation; notwithstanding the fact that whereas our law has been in force but a little over four years, in many of the states such laws have been in force more than a decade. There are many persons driven from this state by the law, who have gone to other states having laws much older than those possessed by Ohio for the same purpose, and such individuals are practicing their nefarious work with impunity. In one case a party driven from this state is doing business on 5th Ave., New York, and advertising in one of the popular magazines. Many of them have gone to other states, and have received license to practice medicine. A score of such cases could be mentioned and the states to which they have gone, but it is not wise to make invidious comparisons.

In conclusion, permit me to emphatically state that we wish it distinctly understood that, in our opinion, the law now in force in the state, for the regulation of the practice of medicine, is fully sufficient to protect the people from the depredations of the uneducated, impostors, and pretenders, provided it has the fearless, determined and persistent cooperation of the physicians throughout the state, and is justly and efficiently construed and administered by the courts. Without this it cannot and will not fully accomplish the beneficent purpose for which it was enacted. With the amount of superstition and ignorance, relative to medicine and medical laws that prevail, it will require extreme vigilance and a firm effort to prevent the medical-practice act now in force from being seriously impaired by future legislation.

DISCUSSION

Dr M. F. Hussey, Sidney: I think this subject is one which is worthy of very careful consideration, and especially so from the standpoint of the physician. I had the honor of being a delegate from our local society to a legislative body of the Ohio Medical Society to discuss the Mosgrove bill

prior to its passage. I then, as I do now, approve it, seeing the beneficial results; and since then I have been interested in the matter of medical legislation, having made a personal request of our Senator and Representative to support the bill, which they did. I believe that the intelligence of the profession has been vastly improved by the bill, also by the efforts of the present board, and that if this board will educate the physicians throughout the State by sending out annual reports and the history of State medical legislation, and acquaint the profession more thoroughly of what they desire to accomplish along this line, they will meet with a more hearty cooperation than has been heretofore accorded them. Honesty begets confidence; confidence will win cooperation; duty done and doing duty are potent factors in the solicitation of the physician's assistance in the execution of the medical laws. The present Board has been derelict in these things; it has not been honest nor done its full duty.

From my county (Shelby) I was instrumental in the prosecution of two cases of illegal practice, both of which were fined and promised to leave the State. A third case came before me and I reported it to the Secretary of the State Board, who replied that as it was a case of charity nothing could be done. In a few days I learned that $100 had been paid for the commission of a homicide under the guise of a surgical operation, and I immediately notified the State Secretary to which he made no satisfactory reply. I then personally called on the Secretary and President of the Board who flatly refused to do more than give me a very short hearing, which they cannot deny. By such work as this the confidence of the physician will be lost and the law be futile.

I as Coroner of Shelby County was advised in the case above referred to by the Prosecuting Attorney to investigate the case, which I did, and the Prosecutor then said he would assist the Secretary who knew this, if I could induce him to do his duty. The Secretary's refusing to come is why the matter never came before the grand jury.

It has been decided by good legal authority in this State "That whoever causes the death of a human being while in the commission of an unlawful act, or if death results from the commission of an unlawful act, is guilty of manslaughter." The physician who did the operation which resulted in the death referred to was an illegal practician,

and a few days after the death of the patient he went to an adjoining county and registered.

The Secretary of our local Society wrote to the Secretary of the State Board explaining in detail the case and urging the necessity of his giving it his immediate and personal attention, to which he received a very insolent reply. Other physicians as well as myself also wrote the Secretary and President, but all of no avail. Should not this Society appoint a committee to investigate such negligence? These letters were sent back to our County either by the Secretary or President, and are now being used against the regular profession in the County.

Are the members of the Board honestly and conscientiously doing their duty, when they call the examiners for entrance to medical colleges together and request them to lower the standard of entrance and make the questions so simple that a twelve-year-old child could pass the examination? Is this fulfilling the letter and spirit of the medical laws?

Dr Lester Keller, Ironton: I am very much interested in this paper, and I am glad that the Chairman of the Board has experienced a change of heart. He says that physicians dread to make prosecutions, and that they will not file charges after making complaint. I think he has reference to some of the other states. I have had some experience in this matter of filing charges against illegal practicians, as Dr Coleman is well aware, also Dr Reed. I filed charges against a man, and have the letters in connection with the case with me now. I have letters from one of the faculty where he attended school in Baltimore. He matriculated there, but never paid his fee, never attended lectures there, and got no credit for a course. A second term he attended at University of Louisville. There he attended one session of eight weeks lacking one day; at least he was away from Ironton that length of time. I filed charges against him, and got the necessary affidavits. His first application for registration was withdrawn, but a second one was afterward filed, and I asked to be present when a hearing was given him but I was refused permission to be present. The Secretary told me if they should deem it necessary to call on me I would be called, but it was never deemed necessary. When I went before the Board I insisted upon an answer, and Dr Coleman told me that he did not deem it necessary. This man is a registered practicing physician in our town today.

The records will show I think that graduates of University of Louisville were not allowed to register until the latter part of August, and I was told that only then after representatives of the faculty had come before the Board and begged not to have the school turned down.

I afterwards filed charges against him for perjury in getting the registration, I insisted on a hearing and did get a partial hearing. When the defendant's affidavits were ready I came before the Board, and there was a decision by the attorney of the Board, now Solicitor-General J. K. Richards, that the other men should see the defendant's affidavits as he had seen ours, but when I demanded to see the affidavits it was refused me. When the evidence was all in Dr Coleman said that there was nothing to this case, and he did not want to hear any more of it. I again asked to see the affidavits, but they told me copies of them would be sent to me. Copies of them were sent me, also a bill for $3.00 for same, which I paid and hold the receipt in my hand. I asked Dr Scudder whom I happened to meet, what the decision in the case was, and he told me that probably Dr Coleman could tell me, and when I approached Dr Coleman he referred me to Dr Reed, and when I appealed to Dr Reed he refused to answer my letters. This same practician has since been indicted for passing a man for life insurance who has been on the pension roll for $72.00 per month. He admits that he signed the medical examination. Dr Coleman was subpoenaed as a witness in this case, but Dr Reed came, as Dr Coleman could not get there. When Dr Reed found out the circumstances in the case, he asked the attorney to excuse him as he was obliged to go home. I told him that I was sorry he was going home as I wanted to see the matter pushed through, and I expected to file new charges before the Board if the man was convicted. The next morning Dr Reed's resignation appeared in the Cincinnati papers. This is a bit of history with which you may not be familiar, and has a significant appearance to say the least.

I cannot see how we can expect to have any confidence in the Board when charges which are filed are treated in this manner. In 1897 in his report Dr Coleman recited this case and said that it was a very troublesome case, but that he had advised the two men to get together on a quiet hillside and settle their differences, and in a few days there was a request from both of them to withdraw the charges. What he did say was that he had had enough of this annoying case, and

he did not want me to come before this Board again. There was a request sent to the Board signed by us both, to withdraw the charges. Signed by me because it was impossible to get a fair ruling under the President of the Board.

Dr D. R. Silver, Sidney: When I say that the members of the regular profession in Shelby County have little confidence in the Board of Medical Registration and Examination I am speaking the plain truth. We have had an experience which has taught us that no confidence is to be placed in some of the members composing that Board. I cannot go into details respecting the case to which my friend Dr Hussey has referred, but will simply say that these gentlemen—meaning the President and Secretary of the Board—were informed that a violation of law had occurred in our County, and because a resident member of the Board was personally concerned in this matter, these men utterly failed to uphold our hands in the prosecution of the case. Moreover, after the coroner had made an investigation and found a condition of affairs that was simply shameful, the very letters we had written in correspondence turned up in our County and were used for political purposes.

Another matter to which I wish to refer is this: Some time ago the Cleveland Medical Society passed resolutions asking that the spirit and intent of the law should be enforced fully as regards the admission of medical students to colleges. The Shelby County Medical Society has always considered itself a pioneer in medical reform, and we heartily endorsed these resolutions, and the reason we endorsed them such cases as the following will illustrate.

A young man, desiring to read medicine, applied for advice to a member of our county society, who told the young man that his education was too elementary, and that he ought to attend school for one year at least to get such information as would admit him to a reputable medical college. Not satisfied with this, he then went to Dr Hussey, who spoke a moment ago on this floor, and received the same advice. Now this same young man after a few months' study of Latin went to Cleveland and entered the Homeopathic College there. If the spirit of the law had been carried out it would not have been possible for this man to enter a college without at least one year's preliminary study.

I make this statement in the hope that such a thing may not again occur. The profession of Shelby County will

uphold the law, but when we attempt to do this we need the aid of the properly-constituted authorities.

Dr Frank Winders, Columbus: In justice to the Medical Board I wish to make a statement of the facts concerning the charges made by the doctors who have just spoken, and in this statement wish to call special attention to facts which it is apparent were intentionally omitted by the previous speakers.

The facts in the case spoken of by Drs Silver and Hussey are these: Dr Good, a young physician from Sidney, Ohio, graduated from the Eclectic Medical Institute of this city in 1899, and immediately thereafter filed his application for, and received a certificate from the State Medical Board. Dr Good's father was at that time physician to the Shelby County Infirmary, and the younger Dr Good assisted by his father and other reputable physicians performed an operation on a patient at the infirmary, as a result of which, unfortunately, the patient died. At the time this operation was made the younger Dr Good had not recorded his certificate with the Probate Judge of Shelby County. The case was reported to the Secretary of the Medical Board by Dr Hussey, who was physician to the Infirmary previous to the time that the elder Dr Good secured the position. Following the custom in such cases, the Secretary referred the case to a member of the Board who resides in Sidney, Ohio, and who represents the homeopathic school on the Board. Dr Hussey was requested to confer with this member of the Board in regard to the case, but for some reason refused to do so. The report of the member of the Board on the case showed conclusively that if there had been any violation of the law it had been a mere technicality, because the younger Dr Good held a certificate from the Board, and further because the operation was under the supervision of a physician who not only held a certificate from the Board but had the same properly recorded. As to the merits of the operation, I know nothing; if anything of a criminal nature occurred it was the duty of the Prosecuting Attorney and Coroner of the County to investigate. The case was brought before the Grand Jury of Shelby County upon the charge of manslaughter and was totally ignored by that body, so that the members of the Society may judge as to its merits. The important point, so far as the Board is concerned, is that Dr Good was a registered physician when the operation was performed.

Concerning the case spoken of by Dr Keller of Ironton, I wish to make the plain statement that it consisted chiefly of a quarrel between Drs Keller and Lowry, both of whom are registered physicians. The matter was brought to the attention of the Board more than four years ago, and after careful investigation of the charges preferred by Dr Keller, no evidence was found sufficient upon which to revoke Dr Lowry's certificate. Charges and counter-charges were made for over a period of two years, and I believe the fight between the parties is still going on, since only recently I received marked copies of Ironton newspapers in which letters saying some very harsh things were published. I believe it is true that a member of the Board did suggest to these men that the proper way to settle their difficulty was to repair to a neighboring hillside and fight it out. I believe that the members of the Society will agree that if the Medical Board attempted to settle doctors' quarrels it would have a difficult road to travel.

Referring to Dr Silver's insinuation "that a certain young man had been improperly admitted to a medical college in this state," I wish to say that this is the most unfair of all unfair statements made here today, because the men against whom the insinuation is made are not here to protect themselves .

The matter of admission to medical schools is solely in the hands of a Board consisting of four of the most prominent high-school principals of the state, men who have no interest in admitting students to medical colleges who are not duly qualified.

I wish to say emphatically that if the young man referred to by Dr Silver received a certificate admitting him to medical college, he was justly entitled to it, and the records of the entrance examiners will prove this to be true.

Dr N. R. Coleman, Columbus, closing: I do not believe it is within the dignity of a gentleman to indulge in personalities when speaking before this Society. Therefore I shall avoid all such allusions, notwithstanding the fact that things have been said here to call for resentment, inasmuch as they were not in accordance with facts. It is, and always has been, the aim and desire to keep the members of this organization fully informed in regard to everything that is being done by the Ohio State Board of Medical Registration and Examination. I wish to confirm the statements made by the

Secretary of the Board as being absolutely correct, as the records will show.

In the case referred to by the gentlemen from Sidney, the Board could see no just grounds on which to base an action, as the physician in question had received a certificate from the Board in due form, although he had not filed the same with the probate judge. In the cases that have been brought against those who failed to file their certificates with the probate judge, none have been convicted. Furthermore, in my opinion, if a true case for action had existed, the case was one to be tried before the courts and not before the Board; and permit me to say that the Board would not hesitate for one moment to proceed against any man, no matter who he or his friends might be, if he was believed to be guilty of a violation or infraction of the law.

I wish to state emphatically that the member of the Board residing in Sidney, the place at which the party in question is located, had a legal right to see all letters and communications sent to the Board relating to the case. It was just and right that the other members should give weight to his statements and opinions relative to the case, as he is a gentleman of veracity, for whom we all have the highest regard. It is very natural that the members of the Board have fully as much credence in the truthfulness and honor of one of their number as of any other person.

In regard to the Ironton matter, I want to say, as one of the Board, that we were fully convinced the matter was one of personal differences. I know the controversy was kept up for a number of years, and possibly it still exists. This case was continued before the Board for two years, but we could not discover anything but a personal matter in connection with it, and no facts on which to warrant the rendering of a decision in favor of the plaintiff. You certainly do not expect the Board to take up matters which are strictly personal. It cannot countenance or sanction such conduct. All cases that have come before the Board, and were within the purview of the law, have received faithful and earnest attention, the Board always aiming to render just decisions.

Hospitals in Small Cities

By LESTER KELLER, M. D., IRONTON

Note the history of the hospital as it has existed in some form since the Buddhist priests in Hindustan established them two or three centuries before Christ. These disappeared with the restoration of the Brahminic religion, and did not again appear in India until the British came. Scattered accounts of hospitals are found in Roman, Greek and Asiatic history. We note that in the ninth century there were 24 in Rome alone. Paris founded one early in the ninth century. England founded two in 1080. America founded her first hospital in 1717, in Boston, to quarantine against "ye plague."* The Revolutionary War greatly stimulated medical science, and the consequent establishment of hospitals.

Steady progress has been made until today we have our state hospitals for the blind, deaf, epileptic, etc., and some of the states are also providing general hospitals for the sick and afflicted. Whether all this is to the advantage of the physician is sometimes a question. Whether our numerous state, county, city, and society hospitals do not make it all too easy for the lazy to get medical attention and build up a system of medical pauperism that is degrading to the recipient and injurious to the physician, we leave this phase to others.

The middle-aged surgeon of today has witnessed one of the greatest revolutions of modern times. He has seen the whole system of surgery changed from the septic to the aseptic era. Only the middle-aged man who has changed his technic as the revolution advanced can appreciate fully what it means. Neither the man who is too old to learn nor the man who is too young to remember can grasp its full meaning. The latter can faintly appreciate the full blessings

*As a matter of historic interest the Hospital of St. Sulpice was founded at Montreal in 1643, it probably being the first in America.—Editor.

he enjoys. With all the changes has come the modern hospital. In fact, it is a question whether the hospital did not make the changes possible. It was only after the discovery of chloroform and ether that hospitals began to lose some of the terrors for those unfortunate enough to be compelled to enter. Lister, with his remarkable discoveries and observations, took away the rest of their horrors and converted the hospital from a charnel-house to a haven of rest.

I am not an old man and have not been so very long in the harness, but I can remember when here in Cincinnati it was the custom for the surgeon to call for volunteers among the students to enter the arena, hold an arm or leg, or handle instruments and dressings without any preliminary preparation. I have often seen the same surgeon place his catling between his teeth because it was more convenient to hold it there than to lay it down. "Laudable" pus was the *sine qua non* of surgical procedures, and this was only two decades ago. I remember when the first abdominal section was made in Cincinnati under Listerism, at the Good Samaritan Hospital, the steam carbolic spray, and the fatal result. I remember the doubts of the surgeons present of the efficacy of the plan. How the technic of that man has improved since then!

The most sanguine college faculty of that day did not expect their graduates to go forth equipped for removing a kidney or doing an ovariotomy. Appendicitis was not born.

No wonder you could count the men on the fingers of one hand in Cincinnati who made any pretentions to surgery, for a man who operated before students was looked upon as a human butcher. A hospital was regarded as the next to the last place, and the public supported just as few of them as possible. How changed! A hospital in every ward, every church has its hospital work, and every prosperous citizen is expected to contribute to the support of one or more. The modern hospital has come to stay. The

medical student has been supplanted by the trained nurse, and laudable pus succeeded by sterile dressings and primary union.

The surgeons can now be counted in Cincinnati by the dozen, and every school is expected to turn out men who can do a strangulated hernia or a trephining the day after he leaves school.

The practitioner in the small town has kept pace with this progress. He tires of sending his surgical case to the city to have his patient return with such glowing accounts of his city surgeon and hospital that it makes him feel very small indeed. He hates to read a finely-illustrated article, describing some surgical procedure so clearly that he who runs may read, and not be able to follow out the work because he has no hospital in which to do it.

A progressive man in any of the smaller towns must go to the cities and hospitals for postgraduate work. He must do it if he keeps up with the procession. He owes it to his patients. How little does the country doctor see outside the hospitals when away for his biannual brushing up? How seldom does he see a man famous that does no hospital work! The names of men familiar to him in the medical journals are men who have hospital advantages. Their articles are headlined with a list of their numerous hospital appointments. Their statistics are gleaned from the record of cases at blank hospital.

Don't for a moment think that the only men who dream of honor and fame in the medical world live in the large cities. Those living in smaller towns have their little yearnings in the same direction. No wonder they go home determined to move to a city or to have a hospital nearer home. A year or two ago a few of us determined to organize a hospital at Ironton, and started a popular subscription to accomplish it. The objections offered were discouraging had they not presented a humorous side. I was advised by some Columbus friends not to attempt abdominal surgery in Ironton or I would get into trouble, by some Cincinnati

friends to send all my surgical cases down there, was told by people at home we would have no patients, and if we had a big operation to do we would have to send to the city for a surgeon, and a thousand and one other equally absurd objections. Well, we did start, we have been full of patients, we do the surgical work ourselves, and above all have had good results. What more can you accomplish in a large hospital?

No one will dispute the fact that a great deal of your medical skill here is due to your hospital advantages and in equal proportion does a hospital advance the profession in small towns. Your work then is under close scrutiny. If we send for a surgeon from the city to operate for us we are soon told that it would be better if the patient were in a hospital, and are constantly reminded that it is difficult to do a thorough piece of work at the bedside, etc. If a good surgeon can not operate successfully outside a hospital, how much less should we in the country be expected to?

Someone who has made a study of the subject says that a bed for every thousand of population is about the proper thing for small towns. Cities the size of Cincinnati and Cleveland have more than that. I recently wrote to twenty towns under 40,000 population that had hospitals, and among other questions asked whether their capacity was sufficient, and every one that had less than one bed for every 500 inhabitants said "no."

While we still expect the larger cities to be the medical centers, and the great surgeons to be located there, we also expect in the next decade or two to see a small hospital in every town of 5,000 inhabitants and over. We expect to see doctors who can successfully operate there in all ordinary cases. We have as many bellyaches in the country as you used to have in the city, and it will be but a short time after our little hospitals are going until we will have just as many cases of appendicitis. It is surprising how soon a hospital will convert bellyache into appendicitis, and "womb trouble" into pus-tubes.

The claim of some for house-to-house operations always seemed to me to be a cheap bid for country consultations and consequent operations. To be sure it must often be done, but surely not as a matter of choice. Anyone who has tried both surely should prefer the hospital.

My inquiry developed some interesting facts. Some small hospitals got city or county aid, some depended upon voluntary contributions, some depended upon fixed income from endowments, others kept up through the efforts of societies organized for the purpose, or churches, while many are private enterprises. Of course, the latter do not appeal to the general public, as they necessarily cannot do a great amount of charity work.

One man in writing said, "whatever you do, don't have any women on your board of trustees." I presume he had been worsted in an encounter.

The tendency at the present time in the cities is to locate hospitals in the suburbs. Some of our finest are away from the noise of the business and manufacturing parts of the cities. Plenty of room and fresh air are recognized as essential.

The only possible reason offered against establishing hospitals in small towns is that they will not receive patronage sufficient to keep up.

That hypocrisy exists in the churches does not argue for one moment that the churches are a detriment to a community. That you have incompetent men in small towns, and in large ones too for that matter, does not argue that you have no one competent to work in a hospital. Because the churches in the large cities are fine and pay large salaries is no argument that churches are not needed in small towns. The church house in the small town may never develop a Beecher or a Talmage, but it will probably be the means of enabling a humble preacher to do better work than if he had to meet his flock in the open air or from house to house as of old.

The hospital in a small town may never develop a Flint

or a Gross, but it will enable the physician and surgeon to do better work, and save lives that might otherwise be lost.

A year's close observation at our little effort has convinced me that the class of patients who come into the hospital would be deprived of hospital advantages if they must depend upon the large cities. It has also demonstrated to me that the physicians who have availed themselves of its advantages have improved in both diagnosis and technic of operation. I expect to see within the next two decades a hospital in every town of 5,000 or over. Speed the day.

DISCUSSION

Dr John E. Sylvester, Wellston: This paper has been most interesting to me. I, like a great many other country doctors, have felt the need of hospitals nearer home than those in large cities. The hospitals in large cities, as the doctor has said, have been a great advantage in certain ways to country doctors in that they have given us the opportunity to learn the art of surgery. But they are not an unmixed blessing. I have seen case after case of people who were able to pay a fairly good fee going to the city hospitals when the operation could have been done in the country. Out in our section of the country it is quite a common thing, when there is any important operation to be done, and after the diagnosis has been made by the physician and an operation advised by him, for the patient to steal quietly away, and the first thing we hear is that he or she has been operated on in a Cincinnati or Columbus hospital, and the patient comes home without having paid a cent for the work done. I have seen this occur time and time again, and in the case of people who were abundantly able to pay quite a good fee for such work, and then have been honored by a visit from good Sisters who asked me for money for some of the same hospitals.

Another phase of the subject is this: In the case of an accident it is not always possible to send a patient to the large cities. In my town of 8,000 inhabitants, situated in the coal region, a great many coal-miners live. I should say we have employed in the mines around somewhere in the neighborhood of 4,000 miners, and hardly a day passes but someone is hurt in the mines. Now it would be clearly impossible to take all these men away to a city hospital,

and it is true also that the miners' houses are not fit for the proper care of such patients—they are often full of dust and dirt and everything else, and an injured miner stands a very poor chance if taken care of in such a home. Through the labors of one man, Dr Hoy, an effort has been made to keep a hospital going in our town, but the miners themselves have never given it much encouragement. This work has been carried on for four or five years, and almost the entire expense has been borne by this one man. The fact is his work is not being appreciated when it comes to dollars and cents. I am afraid that the hospitals in small towns will have to depend on the philanthropy of the physicians in the towns. The poor man who needs a lawyer has to hire one, and if charged with a crime the country will furnish one for him, but with us it is different. The physician is always expected to do charitable work. The workingmen who profit most by the hospitals will do little to keep them up. Unfortunately the physician has to be a breadwinner before he is a philanthropist, and for that reason it is a great hardship on the average physician to keep a hospital going. I appreciate very highly the work that Dr Keller and his associates are carrying on in Ironton, and I hope it will eventually pay them indirectly if not directly. For our own neighborhood I desire very much that a hospital should be established, but I am not such a philanthropist as to be willing to put my shoulder to the wheel and spend what substance I have in caring for the public. I will leave it for those who have more of a taste for surgery than I have. I think however that it is a very laudable undertaking.

Dr W. W. Vinnedge, LaFayette, Indiana: The paper of Dr Keller appears to be most timely, as it so thoroughly reflects public and professional sentiment throughout the country on this subject. The drawbacks in this work mentioned by the last speaker are present, but they are being overcome by the organized sisters, deaconesses, and societies of that sort, and it will not be a long time before the hindrances referred to in the paper will cease to exist. The sentiment of the physicians in towns of medium size as to population favor small hospitals. These are supported and maintained in different ways, by voluntary contributions largely, and these are made available through the influence of physicians. The same humane awakenings which Dr Keller and others have turned to professional account in

his home town, prevail in my state, and I believe throughout the country generally.

This paper furnishes details of efforts on the part of physicians in the interior towns to meet and satisfy demands in a professional way from the people; it is certainly a saving and a convenience if the sick and injured can have their professional work well done at home.

Dr Lester Keller, Ironton: I do not know that there is anything that I can add to the paper, unless it might be to answer any questions of those who are interested in a movement of this kind. Our town has a population of 12,000 to 14,000, and the hospital there is a missionary movement to a certain extent. We have a great many people who have never seen the inside of a hospital, and of course they have not seen a large one when they have seen ours. We have twelve beds, and they are full all the time, and we have people on the waiting-list. It has been a surprise to the physicians who are doing the work to find that we have had nearly as many patients from Kentucky and West Virginia as we have had from Ohio. We were really surprised to see how much we could do. We did not contemplate in the first place doing much abdominal surgery, but our little report shows about fifteen abdominal operations for the first nine months, including extrauterine pregnancy, hysterectomies, both vaginal and abdominal, etc., in fact we have attempted almost everything that has come along. The point I made in the paper was that it stimulates men to better work, as well as giving them an opportunity for better work. The building was given us by the father of a gentleman who died in the Spanish-American War, and we have named our hospital for him. It is under the Deaconess' movement. We are in reality a branch of the Deaconess' Hospital on Liberty Street, in Cincinnati. The profession is perfectly harmonious in regard to the hospital, and every physician in the town has a right to send patients there.

Dr Joseph Ransohoff, Cincinnati: Speaking about the earnings of the country doctor, the work he does for glory, and possible fame, who now gets the glory who sends his cases to Ironton or some other small town? What difference does it make to him whether the man is in Ironton, Columbus, Cincinnati, or New York? Is it not perhaps better for that man that the one who gets the glory should

be found miles away than that he should be five or ten miles away? I have seen something of hospitals in small towns and the efforts put forth are very commendable. But what about the feeling of the man on the outside of this small town in which is situated a small hospital? How does he feel towards the hospital in the larger cities? We have many hospitals, and nothing can be said against the establishment of larger hospitals, and the more small hospitals there are the more good men we have, but I do not see where the benefit comes to the general practician in the country five or ten miles away from that little city; and I do not see where the benefit comes in to the man who is not connected with the hospital in a small town who is living in that same town. He is not in it.

Dr Lester Keller, Ironton, closing: I shall be glad to say that we have not had but one, but a dozen physicians who lived within a radius of ten miles who have brought us patients, and they have retained control of their patients, and not only that but it has given them an opportunity of seeing the operation. Not so brilliant a one possibly as my friend Dr Ransohoff could do, but certainly better than the physician could do at home. Whereas if it had been necessary for them to have gone to Cincinnati or any other large city they would not have been able to have afforded the time and expense. This is certainly a little bit better than the physician would have been able to do if he had no hospital near him to which to send the patient.

As far as the physician on the outside is concerned, I will say that every registered physician has the same opportunities for work in our hospital. The staff which has been made up for our hospital has been in name only, and we can turn over a patient to any physician if they have any choice in the matter of who shall attend them. Every physician has signed an agreement that he will donate his services to any charity patient, who might select him as their physician, when they enter the hospital as patients. We have only one who has from choice not cared to do that.

On Professional Practice and Morals in Relation to Life Insurance Work

BY W. W. VINNEDGE, M. D., LAFAYETTE, INDIANA

During February of this year an interesting case was tried in Delphi, Indiana, in the Carroll County Circuit Court, and I chanced to hear a part of it by being detained in the court-room as a witness. The legal discussion of it brought out the question of privilege in relation to the professions, especially as to the medical profession in relation to work for life insurance companies. Should the applicant for life insurance be privileged in law, as in the case of patients? Or in what respect, if any, do the relations of the applicant and physician differ from those of the patient and physician as to privilege?

The case on trial was based on a claim for damages against the city of LaFayette, for alleged personal injury and resulting death, and was filed in Tippecanoe Circuit Court by the administrator of the estate of decedent, and subsequently venued to Delphi, Indiana.

Since it was impossible to obtain a connected clinical history from the official records, the one here used was furnished by the widow of decedent and is as follows:

A. M., native of Germany, about thirty-two years of age, married eight years, father of two children, the younger posthumous, butcher, resident of LaFayette, Indiana, eighteen years, five feet eleven and one-half inches high, weight two hundred and seventy-six pounds in health, drank freely of beer almost daily, but never used intoxicants sufficiently to incapacitate him for his work. He furnished no previous history of any serious illness or disease, except that furnished by an examination for an eastern life insurance company by the local medical examiner of LaFayette, Indiana, on December 11, 1896, when during said examination the specific gravity of his urine was found to be 1.025 and "sugar in considerable quantity" was reported in

it then, but if any evidence of any other abnormality was found it was not reported. On this one professional examination decedent was not accepted for life insurance, and later, on the witness stand, the local medical examiner of the company swore that on this single examination of urine he made the diagnosis of *diabetes mellitus*. The widow, whom I know as a trustworthy woman, for she was formerly a domestic in my family two or three years, assures me that before and after the life insurance examination her husband made no complaint as to his urinary organs, complained of no dryness of the throat, did not pass an unusual quantity of urine, did not rise at night to empty his bladder, experienced no loss of flesh or strength or impairment of appetite, and never missed a whole day's work.

On or about February 10, 1897, while decedent was in the south part of LaFayette, driving a wagon loaded with recently-dressed meat towards his employer's meat-market, and while crossing a drain some four feet deep, having a little wooden bridge over it, a stringer of the bridge suddenly broke in two or gave away and caused the wagon to tilt quickly, throwing the decedent off the wagon to one side; he immediately unloaded the meat, drew his wagon out and reloaded the meat into it and continued his journey to the market, and did not abandon his work as a butcher until about the first of May following. After the fall he complained to his wife and immediate friends of pain in or about his rectum and even up into his lower bowels; he sat on one side of his person at the table and elsewhere, lost flesh during April immediately following the receipt of his injury, became restless, and frequently complained of pain in or about the site of the blow from the fall. He said that in falling he struck on or against a low blunt fence post, but of this there was uncertainty, and difference of opinion and statements on the part of witnesses in court.

On or about the first of May following the receipt of his injury this man called at the office of a physician in LaFayette—not the local medical examiner mentioned—

who, after an examination, told him that he had an abscess close to and alongside of the rectum. Five days later, together with another physician, he called and lanced the abscess, and through the place lanced a great deal of pus mixed with fecal matter escaped. On the following day, May 6, 1897, the patient became comatose and died shortly afterwards. No necropsy was made.

On trial the counsel for plaintiff sought to connect and explain the death with the injury as the cause; while the defendant's counsel sought to convince the jury through testimony and argument that decedent did not sustain any personal injury of moment at the bridge on February 10, 1897, and consequently the defendant could not be made to respond in damages; that the defendant was not bound to show what did cause the abscess or death; that decedent might have died from many different causes, one of which was *diabetes mellitus*, etc. Thus the diabetic factor in the case was much discussed in the court-room.

Finally, after argument by counsel and instructions by court, the jury deliberated and found for the defendant. On a motion for a new trial, argued by counsel during the first week of April, 1901, plaintiff's counsel set forth as the chief reason for a rehearing, that the Court erred in admitting the evidence of the local medical examiner of the life insurance company, whose relations with the decedent applicant for life insurance were privileged and confidential as between patient and physician; that by admitting such evidence the case of the plaintiff was injured; that "there is no question that the communication decedent made to Dr T—— was made to the latter *as a physician*, nor that it was made to him in the course of his professional business."[1]

The law of Indiana[2] as to patient and physician is as follows:

"The relation between physician and patient is confidential, and the former may not to the injury of the latter

(1) Plaintiff's brief, p. 6.
(2) 77 Ind. S. R., p. 203.

or his representatives testify to what he learned of the latter's ailment, either by examination or observation or oral communication." * * * "The relation of physician and patient, no matter what the supposed ailment, should be protected as strictly confidential, subject only to the right of the patient to waive the restriction." * * * "If life insurance companies desire to secure from their policy-holders a waiver of so important a right, it should be accomplished by a stipulation too plain and direct to be misunderstood."

The plaintiff's motion for a new trial was overruled by the Court in substance, as follows: This was an action by the plaintiff against the defendant to recover damages on account of the alleged wrongful death of the decedent, occasioned by an accident in one of the streets of the city of LaFayette. The accident occurred February 10, 1897, and the decedent, as was alleged in the complaint, died from injuries therein received about three months after the accident. At the trial, Dr T——, a witness for the defendant, was permitted to testify, over the objections of the plaintiff, to the effect that about a month before the accident he, as a physician for a life insurance company, examined the decedent on his application for life insurance; that at such examination he discovered sugar in the urine of the decedent, and that said decedent then had diabetes. This evidence was very damaging to the plaintiff, as it tended to show that the decedent came to his death from diabetes, and not from the alleged injuries received in the accident on the street. The jury returned a verdict for the defendant. The plaintiff filed a motion for a new trial on the ground that there was error in admitting the evidence of Dr T——. The Court overruled the motion, holding that clause 4 of Section 505, 1 R. S. 1894, which renders incompetent the evidence of "physicians, as to matters communicated to them as such, by patients in the course of their professional business, or advice given in such cases," does not apply to the present case, holding that the relation

of physician and patient did not exist between Dr T—— and the decedent, and that therefore Dr T—— was a competent witness as to the matter about which he testified.[1] After a most painstaking search of authorities by the learned counsel for plaintiff the conclusion is reached that the records of the higher courts furnish no ruling on the question of the relation between the local medical examiner and the applicant for life insurance—whether it is the same as between physician and patient.

Since there appears to be no well-defined ruling on this precise question available, I may consider the subject somewhat by analogy. A few years ago I asked permission of the Commissioner of Pensions to use the clinical notes of an applicant for invalid pension, having obtained information of the case through being an examining surgeon for pensions. That official replied that I had permission to use the notes of the case circumspectly for a scientific purpose only, and I was furnished with a copy of the notes of the case.

The fact that all life insurance companies of position require secrecy, confidential relations between applicants and medical examiners, even more rigid than often obtains between physicians and patients, serves to show that full and free interchange of questions and answers is sought in order that the written reports may be clear and satisfactory. Here are some of the questions found in the blanks at hand for physician's reports of a few of the leading insurance companies, and these serve to declare the objects and purposes of companies as to the point under discussion. * * * "Are you and the applicant alone for this examination?" * * * "What person or persons other than applicant and examiner were present at this examination?" * * * "At the time you elicited and recorded the foregoing declarations and during the examination was there any one present other than the applicant and yourself?"

(1) Substance of ruling by Circuit Judge Palmer.

* * * "Was there a third person present during your examination of the applicant?"

If a life insurance company requires professional form and secrecy on the part of the applicant and medical examiner during an examination, should not the company in turn apply the same rule to itself, even if no legal guide appears? The rule of practice now is for reports on applicants furnished companies by local medical examiners to pass through the hands of agents before reaching the home office. If privilege does not apply I suppose the practice is sound in law, but it is certainly not so if measured by ordinary ethical standards.

The exact course pursued in this case by the life insurance company and its local medical examiner has been kindly furnished the writer by the counsel for the defense, and is as follows: That counsel for the defendant obtained a copy of the local medical examiner's professional examination of decedent from the life insurance company; that said copy was sent to the local medical examiner in LaFayette by the company to be delivered to counsel for the defense; that counsel for the defense called said local medical examiner as a medical expert, not especially on the diabetic phase of the case, but just as other experts were called, and while on the stand he was questioned about the diabetes and of course was compelled to respond under the rulings of the court; that said local medical examiner never saw decedent as a patient, never treated him as such, and his professional knowledge of him was obtained through his one examination as a medical examiner of the insurance company; and that he thinks he only acted as the agent of the life insurance company in testifying about his work for it.

On these facts it is a matter of conjecture as to how the life insurance company that figured in this trial, only fragments of which are here furnished, justified itself for sending a copy of its report on decedent by its local medical examiner in LaFayette, without compulsion, to the defense

to be used in the trial against the widow and children of the decedent father—the man who had in good faith only two months before the accident applied to it to protect his family in a financial way in the event of his prior death. Even if one eliminates the question of privilege there is certainly no ethical justification for the act. It was wholly unnecessary on its part to invade this case in order to protect a litigant in whom it could have no pecuniary interest. This action can scarcely reflect the ethical ideals of life insurance companies generally.

Finally, in addition to the medicolegal and ethical lesson of this case, it furnishes a striking suggestion of the necessity for a better acquaintance with the standard of morals and citizenship furnished by our statutes. The guide thus furnished is fairly uniform, reasonably safe from friction, and free from varying professional sentiment, and without doubt the most convenient and safe guide as to practical medicine.

CHAPTER VIII OPHTHALMOLOGY

To what Extent may we Hope by Treatment to Delay the Progress of Cataract

BY C. F. CLARK, M. D., COLUMBUS

When informed that he has opacity of the crystalline lens and that this is a progressive disease the culmination of which is blindness, it is only natural that the first question asked by the unfortunate patient should be, is there no means known to science by which this disease may be cured or by which its progress may be checked?

If the patient has been induced to consult the oculist on account of marked impairment of vision, the cataractous process has generally advanced to such a point that the answer must be to the following effect: while possibly the progress of the cataract may be slightly influenced by your manner of life, the care observed in the use of your eyes, and internal medication, nothing that we can do will prevent your cataract from going on to maturity, and we can offer you no relief excepting by an operation for the removal of the crystalline lens, and this should be delayed until the changes taking place in the lens-cells have so far advanced as to render the conditions favorable for extraction.

In the face of such an answer is it strange that the unfortunate patient lends a willing ear to the charlatan who announces with confidence that he will within a few weeks or months restore to his eyes the clearness of youth, and who extolls the virtues of that God-given force, electricity, or that wonderful and costly extract obtained at great pains by a secret process from a rare South American plant known only to a few Indians and patent-medicine man! And when

in addition to this, he is told that this wonderful process of cure is beyond the reach of the nonprogressive members of a conservative profession and is confronted with testimonials from eminent jurists and divines who have been absolutely cured within an incredibly short time, is it strange that he says I will drink of this fountain of youth?

Has human nature changed since the days of old? Was Ponce de Leon the last to perish in the quest of this evasive spring? While the proud Spaniard of the fifteenth century sailed for months on unknown seas, and toiled for years through the tangled forests of a strange land to obtain the fluid that would make him young again, the humblest American citizen of the nineteenth century has the fountain brought to his very door, and may buy the water of life from the patent-medicine man at a dollar a bottle! And by the magic touch of a few drops of this wonderful juice of a South American plant, a century of labor by the best minds in the medical profession who have devoted themselves to the development of the operation for the extraction of cataract has been rendered of no avail. Truly wonderful are the advances of modern science!

But is it true that, aside from an operation, the medical profession has nothing to offer to the victim of cataract? In a limited sense it is. In a broader sense it is not. If well-defined degenerative changes have taken place in the cell-structure of the crystalline lens, and opaque lens-cells are present, they remain unabsorbed. There is no sufficient evidence known to the writer that in any single instance a true, simple, senile cataract was ever cured by the use of remedies applied to promote its absorption. But there is abundant evidence that many cases of obscure and insidious disease of the eyes have been controled by careful management and treatment which, had they been allowed to run their course, would have resulted in the development of cataract.

These cases are probably far more numerous than is generally recognized. I would venture the statement that a

large number of those within the sound of my voice who consider their vision quite perfect would find, if their pupils were well dilated and their eyes subjected to close scrutiny, that they have more or less opacity in the periphery of the crystalline lens associated with other evidences of insidious changes in the uveal tract.

In the discussion which follows I would direct your attention to that form of cataract which is generally termed simple, or uncomplicated cataract, and which is usually classified as one of the diseases of old age; but congenital and juvenile cataracts and cataracts due directly or indirectly to traumatism or which are merely a complication of a well-defined attack of iritis, cyclitis or choroiditis, or which accompany glaucoma or detachment of the retina are excluded.

This question has been so fully and so ably discussed in the special literature of ophthalmology by numerous foreign writers and in this country by Risley, Weeks, de Schweinitz, and others, that there would seem to be but little that is new to be said upon the subject, but I have been convinced that many physicians in general practice have never had their attention directed to these writings, as otherwise we would not so frequently hear of the encouragement which patients with cataract receive from their medical advisors in the use of electricity, "*cineraria maritima*" and the numerous other remedies prescribed to promote absorption of opacities of the crystalline lens.

In cataract an early diagnosis, not only of the changes in the lens but also of the underlying conditions on which those changes are dependent, is of vital importance if we are to be of real service to our patients in conserving their vision. And in this respect, ophthalmology does not differ greatly from other departments of medical science. In proportion as we succeed in detecting the underlying cause of any disease in its incipient stage do we succeed in our efforts to check its progress or effect a cure: and the final triumph of scientific medicine will have been attained when, before

the development of any given lesion appreciable to our senses, we will have learned to recognize the underlying conditions which may lead to it, and by their removal to prevent its development.

What then are the underlying causes of what we term senile cataract? In general we may say that all of those conditions which tend to tissue-degeneration may be classed as indirect causes of cataract, and as a corollary it may be said that in retarding or preventing cataract those general conditions should be observed which tend to preserve the integrity of all of the tissues of the body.

But to be more specific, what special conditions are to be observed if we would prevent the formation, or hold in check the progress, of an incipient cataract? We must here turn to the sources of nutrition of the crystalline lens, and study the causes and conditions which interfere with its obtaining its full supply of nutritive material and those other causes which retard elimination of waste products. The great vascular supply or nutritive reservoir of the eye is the uveal tract, consisting of the choroid coat, ciliary body, and iris; and the nutrition of the lens is dependent upon the integrity of these structures, especially upon the ciliary body and choroid. While, as in other portions of the vascular system, serious changes may take place of a character so insidious as to evade detection, it is nevertheless true that by a careful inspection of the fundus of the eye with the ophthalmoscope and a close study of the general vascular system and of those systemic conditions upon which vascular degenerative changes are known to depend, we may in many instances discover the underlying cause, and by careful management and well-directed treatment prevent, or at least retard, the progress of those cell-changes which we term cataract.

In this connection it is well to state that the term senile in connection with cataract is misleading, as from its use the inference is sometimes drawn that cataract is in some way inseparably connected with old age and for this reason in-

curable. It is true that, like many other processes associated with changes in the vascular system, all of which manifest themselves much more frequently in the aged, cataract is generally found in those of advanced years, but when we consider the numerous instances of its development in individuals less than forty years of age and the enormous number of those who die of old age without developing cataract, it is apparent that the term senile, if employed at all, should be used with the understanding that it refers to the character of the other changes with which we generally expect to find cataract associated and which are more common in the aged, and not to any necessary association of age with cataract. Certain sclerotic changes undoubtedly take place in the lens, as in other tissues, in all old people; but if these are uniform in character, and unassociated with unequal degenerative processes in various portions of the lens-substance, they are not inconsistent with excellent vision and, while giving a somewhat smoky appearance to the lens, should not be called cataract.

From an experience extending over a period of more than seventeen years in one locality in which I have had an opportunity to follow the after-history of a large proportion of the cases observed and from the records of many thousands of patients with various diseases, in whose cases I have made careful examinations of all portions of the crystalline lens while the pupil was fully dilated with a mydriatic, I unhesitatingly make the statement that a very large proportion of those changes which are generally recorded as "incipient cataract" are seen in relatively young people and, under favorable circumstances, make little or no progress after existing for many years. I should, from my own experience, say that only a small proportion of the cases of incipient cataract observed ever come to maturity, and it is extremely probable that if we could thoroughly inspect every part of the eye we would also find in all of those which do come to maturity some progressive change in the uveal tract as a cause. While in a certain proportion of cases we

must grant that the underlying cause of opacity of the crystalline lens remains undiscovered in spite of our best efforts, still among those who report for examination while the lens is sufficiently clear to allow of a careful study of the fundus so large a number exhibit changes in the choroid coat indicating impaired nutrition of the lens that it is apparent that to this condition our treatment should be directed.

True opacity of the crystalline lens once formed is permanent. The extremely rare instances of apparent disappearance of cataract which have been reported are so exceptional that they must be regarded as clinical curiosities, if, indeed, they are not errors of observation. Certainly all careful observers are agreed that they form no basis for a system of treatment.

Our attention must be directed therefore not to the absorption of cataract, which is a delusion, but to such management and treatment as will tend to remove the causes, and, so far as is practicable, hold in check the advance of the opacity. A certain proportion of cases of immature, simple cataract are the result of temporary interference with the nutrition of the lens, due to some cause which has ceased to act, and are therefore nonprogressive. To such patients, if the opacity is sufficient to seriously interfere with vision, we may in a few selected cases, afford some relief by the use of a mild mydriatic, allowing the rays of light to enter at the side of an opaque nucleus, by an iridectomy for the formation of an artificial pupil, or by resorting at once to extraction of the lens; which latter operation is, in my judgment, decidedly preferable to any of the procedures sometimes employed for the purpose of artificially ripening the cataract. These methods of treatment are not within the scope of this paper which is intended to deal only with progressive, immature cataract in its early stages.

In treating a patient with immature progressive simple cataract, we should employ all of those agencies which may tend to prevent undue congestion of the uveal tract, and endeavor by all means to improve the general nutrition of

the eyes by the correction of errors of refraction, relief from such work and exposure to extreme light and heat as will maintain a state of congestion of the choroid and retina, and, in proper cases, the administration of potassium iodid and other alteratives to overcome any low grade of choroiditis which may tend to gradually impair the nutrition of the lens.

Risley, in his able paper which appeared in 1889, called attention to the frequent occurrence in incipient cataract of "floating vitreous opacities, headaches, asthenopia, red-eyelids and chronic conjunctivitis of the congestive type," and since that time the common experience of ophthalmic surgeons has tended in large measure to confirm the results of his observations.

In the general treatment of such cases one must have constantly in mind the fact that the choroid and ciliary body, upon which the lens depends for its nutrition, are a part of the general vascular system, and that such diseases as manifest themselves in alterations in the walls of the blood-vessels, or in the condition of the blood itself, are peculiarly liable to result in disease of the choroidal and ciliary vessels, and later in impaired nutrition of the lens. The more chronic diseases such as diabetes mellitus, the rheumatic or gouty diathesis, and especially atheroma and arteriocapillary sclerosis are more commonly found associated with alterations in the lens than are the more acute affections which may pass away before serious damage has been done to its cell-structure. Treatment directed against these conditions may, of course, prove unavailing, but in some instances the degenerative processes may by careful treatment and judicious management be held in check for many years.

The employment of nonoperative local therapeutic measures in the treatment of opacity of the crystalline lens, which in the past has been the subject of prolonged discussions, seems to have a special charm for the victims of cataract; and, in spite of the fact that this is the favorite field of the charlatan, this is a subject worthy of our careful consideration. Electricity, stimulating solutions (often

termed absorbents) instilled into the conjunctival sac, and massage have all been employed, and thousands of the unfortunate victims of cataract are at this time industriously making use of these agencies, and living in the hope and belief that they are gradually, *very gradually*, bringing about the absorption of their cataracts and restoring the light of heaven to their eyes, while gradually, in spite of all they can do, the disease advances and they at last must sit in darkness or resort to the knife for which they have such a dread.

Nothing could be more pitiful than the contemplation of this army of unfortunates and the dismal failure which awaits them. In one of the famous institutes in New York State devoted to the cure of cataract without operation, the management has resorted to the ingenious device of having a series of cheerful mottos hanging on the walls to be read by the victims so long as they can see to decipher them, one of which, I have been told, is an injunction to be cheerful and avoid saying anything discouraging to the other patients. This, at least, is humane and should be commended.

While the quacks and knaves who impose upon those who are weak-minded enough to believe them, build up fortunes by means of their false promises to bring about the absorption of opacities already formed, their hold upon the public is probably maintained by the fact that a large proportion of cataracts are nonprogressive, or advance very slowly, and in these instances the massage and local stimulation, with attention to diet and general health, undoubtedly do sometimes hold in check processes which under other conditions might progress more rapidly. These patients having been duly impressed and convinced at the outset that without proper treatment they would soon be blind, after using the famous juice of a mysterious South American plant or some other equally inert substance for a sufficient length of time, are pronounced cured, and by their extravagant testimonials serve to draw in the more unfortunate ones who come expecting the immediate absorption of dense opacities

It is the old story that we hear told in all departments of medicine, and will hear so long as human nature is what it is. We should not allow ourselves to be disturbed by these weaknesses of our neighbors, but should keep our heads clear and our eyes open and learn what we can even from the quacks.

While of very limited application, it is not improbable that massage, applied with skill and by methods which have not yet been fully developed, may at some future time be found to be one of the accepted means of improving the nutrition of the uveal tract, and thus holding in check the progress of degenerative changes in the crystalline lens as it has been found to retard the progress of glaucoma. But on the other hand, it is very probable that massage, *as generally practiced*, as often leads to increase in opacity of the lens as to improvement in its nutrition.

I have made no attempt to use electricity in these cases though I have seen a number of patients who have submitted to its use in the treatment of cataract; but neither from these cases nor from the literature of the subject have I been able to obtain positive evidence of its possessing any real value in improving the nutrition of the eye, and retarding the progress of lenticular opacity.

In conclusion I would say that, while undoubtedly many insidious processes on which the development of cataract depends may by judicious treatment be practically cured and the growth of the cataract arrested, there is no sufficient evidence that electricity or any other therapeutic agency has ever caused absorption of a well-defined dense opacity of the crystalline lens.

CHAPTER IX—ORTHOPEDIC SURGERY

ABNORMAL CONDITIONS OF THE FOOT AS CAUSE OF KNEE SYMPTOMS

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The knee-joint is so large, so well protected, and consequently so difficult to palpate in all of its parts, that unless accompanied by effusion or decided alterations in the bony contours it is often impossible to recognize with certainty the earliest stages of certain arthropathies, evident enough in their later manifestations. Many times painful conditions of the knee are called "rheumatic" simply for want of a more definite diagnosis, and fail to obtain relief because of lack of treatment intelligently directed toward the cause.

I wish to call attention to a class of cases which has received scant attention from writers and in which pain in the knee, accompanied or not by perceptible organic changes, is to be ascribed to a pathologic process situated at a distance from this joint, especially in the foot and ankle. We are all of us familiar with the reflected pains having their origin above, in the hip or even in the sacroiliac joint, and especially if occurring in children they are not likely to escape the observation of the careful practician. That pains in the knee may have origin lower down in the limb is I believe not so well understood.

The conditions of which I speak are characterized chiefly by pain situated in various parts of the joint, and sometimes accompanied by pain in the hip also. Pain in the hip is however frequently wanting. Physical changes in the knee of evident character may be present or not, and the pain may overshadow entirely the symptoms arising from the foot, which

is to be nevertheless regarded as the "*fons et origo mali.*" In fact, the condition of the foot may be entirely painless, and the patient unaware of any abnormity there existing. Unless the condition of the foot is inquired into, the nature of the knee symptoms may remain obscure and give rise to erroneous diagnoses of rheumatism, functional joint disturbance, or even, as I have once seen, of hip-joint disease.

In my own limited experience the patients have, with two exceptions, been of the female sex, and for the most part near either the onset of the catamenia or the menopause respectively. They have mostly been also of so-called nervous temperament, but I am not prepared to say whether these factors are to be considered of causal importance. I have, however, in no instance considered a case in this category unless the disappearance of the knee symptoms as the result of treatment directed to the foot seemed to justify it.

The conditions of the foot which I have held accountable for the knee symptoms are three: the contracted foot (non-deforming club-foot of Shaffer), the weak or pronated foot without sinking of the arch, and the typical flat-foot with its accompanying pronation. The knee symptoms have, for the most part of my experience, consisted of pain unaccompanied by marked physical changes. The following cases are selected as being characteristic of their kinds.

Case I. This patient is a girl of fourteen years, of apparently delicate fiber, and who has not yet menstruated. Since February, 1898, she has had at times a peculiar limp in the right lower extremity, with pain in the knee and very seldom a slight pain in the groin also. The pain is located by her around the patella and sometimes in the popliteal space. It is always aggravated by walking or standing, but at times is present during recumbency and has repeatedly interfered with sleep.

Her gait and standing position are peculiar, giving the impression that it is difficult for her to apply the heels firmly to the ground. The mother has often noticed her standing on the ball of the foot with the heels raised. The pain has been variously ascribed to the hip and to the slight lateral curvature which is present.

The examination shows her to be of weak musculature, though otherwise fairly developed. She has a slight sinistro-convex C-curve of the spine. Measurements of both lower extremities are equal in thigh, knee and leg. Movements of hip and knee are perfectly natural save an exaggeration of the pain in the knee when this joint is completely extended. The examination of the knee shows nothing abnormal, and there is no tenderness at any point.

The patient is wearing shoes with high heels, for the reason that they feel especially comfortable. The feet are both slender with high insteps. In walking with shoes on, the internal malleoli roll far inwards; much less so in standing and in bare feet. Impressions show the *planta pedis* to touch at the heel and ball only when full weight is borne. Dorsal flexion can not be made passively in either foot beyond 95°; in the attempt to exceed this a firm band is felt tightly stretched across the soles, corresponding to the plantar fascia. In the right foot this band is tender to pressure.

The diagnosis of contracted foot was made, and a treatment given with the Shaffer equinus apparatus. At the conclusion of the treatment the pain had disappeared. Relief was however but temporary, the pain returning before night. Daily treatment was given with this same result, the periods of relief growing longer gradually until at present the patient suffers no pain. She is still receiving one treatment weekly, and it is hoped that the recovery may soon be considered permanent. During the first few treatments the pain, always present at the beginning, disappeared upon tightening the apparatus for the second or third time. Besides the immediate response to treatment, it is interesting to note that no subjective symptoms were present on the part of the foot itself.

In another case (Case II) although the contraction of the foot was less, as shown by the impression, the patient complained not only of the knee but also of the anterior metatarsalgia common to many of these cases. In this case there was also a decided abduction of the front foot in addition to an evident pronation, and the etiologic factor was a sprain received over a year before.

As an example of the second variety of cases mentioned, I shall present the history of a woman 22 years of age (Case III). Her occupation necessitates her standing the greater part of the day. She is tall and heavy. She has pain

over the dorsum and below the internal malleolus in both feet, but complains especially of the right knee. The impression shows arches of normal height on both sides and great pronation. Dorsal flexion 80° in the left ankle and 95° in the right. The right knee was somewhat swollen, and was tender over the internal condyle of the femur as well as in

FIG. 1. FIG. 2.

Fig. 1. Impression of the right foot of Case 1.

Fig. 2. Impressions from Case 3. The impressions show the arches intact in both feet. The contours of the feet, however, show the bulging in the region of the scaphoid characteristic of great pronation.

the popliteal space. The excursions of the joint were normal, but complete extension was somewhat painful. Valgus plates at once relieved the pains in the feet, but the right knee continued tender and painful until after a few treatments with the Shaffer shoe; this resulted in the disappearance of the symptoms.

Case IV concerns a lady fifty years of age who has gained weight rapidly. Of decidedly nervous temperament, she is suffering from the disturbances attending the menopause. She has been wearing a support for the right foot made by an instrument-maker in another city. The trouble

FIG. 8.
Pronounced planovalgus. Impressions from Case 4.

for which she sought my advice was of the left knee. This joint had been giving her pain for about one year. Without having compelled her to desist from walking, or causing any evident lameness, she has suffered from stiffness and pain in this joint, localized for the most part in the popliteal space about the hamstring insertions. This pain was greatly in-

creased by walking and standing. It often continued for some time after retiring to bed, being entirely gone in the morning. It was most severe upon arising, until the joint had been "limbered up."

The examination showed an increase in the circumference of ¾ inch over its fellow, the leg being also somewhat swollen. There was tenderness over the internal femoral condyle. Movement of the knee was not limited, but passive complete extension was painful. The foot, which had never caused her pain, presented the condition of planovalgus in slightly less degree than its fellow. (Impressions) Dorsal flexion in both feet to 80°. Without making a definite diagnosis, the knee was treated by hot-air baths of 350°. The foot was not considered a factor in producing the pain. The pain was relieved immediately following each bath, but invariably returned. The wearing of a well-made valgus brace cleared up the difficulty at once.

Quite recently I have had the opportunity of seeing a very striking case in the service of Dr F. W. Langdon at the Cincinnati Hospital. The patient, a barkeeper by occupation, had come under his care with the diagnosis of sciatica, and after having had treatment directed toward this source to no purpose. Noticing that the patient was free from pain when recumbent and that his feet were decidedly abnormal, Dr Langdon kindly asked my opinion of the case. The painful points characteristic of sciatica were not to be found. While the greatest pain was at the hip, the patient suffered greatly, when standing, from pain in the popliteal space close to the fibular head. Both the feet presented marked planovalgus with deformed toes. The patient said he had had no pain in the feet for some years; formerly they had troubled him greatly. Believing the knee and hip pains to originate in the foot and ankle, a Gibney adhesive-plaster dressing was applied in such a way as to lift the depressed arch and overcome temporarily, at least, the pronation. The result was the immediate relief of the knee pains. The hip pains, while very much less, have not entirely disappeared; this, I believe, is to be ascribed to the fact that the dressing is only partly efficient. The result is however convincing as far as it goes.

In summarizing these cases we may say then that in Case I we were dealing with knee pain produced by shortening of the calf-muscles in a case of contracted foot, but with-

out pain in the foot itself. In Case II we had a case of valgus with its characteristic symptoms in the foot but, accompanying this, shortening of the calf-muscles, attention to which latter caused the disappearance of the knee pain. In Case III we have an ordinary planovalgus, without demonstrable shortening of the calf-muscles, producing not only pain but also evident physical change in the knee, which pain disappeared only after appropriate treatment of the abnormal but symptomless foot. It appears to me that in these cases we are justified in ascribing the knee symptoms to these respective factors *ex juvantibus*.

That pain in the knees and even thighs and back may accompany the more local symptoms of pronated and flat-foot has been noted by a number of writers,[1] and the explanation on anatomic and physiologic grounds of this phenomenon has been furnished by Dane.[2] In view of the scanty references to this fact in the literature, however, it seems worth while to point out that the pronation which, by interfering with the locking mechanism of the knee-joint in the extended position, causes the knee symptoms, may itself be without subjective symptoms, and thus lead to misinterpretation of the clinical phenomena.

That pronation is a separate force distinct from shortened calf-muscles in producing knee pain is shown by Case II. Here the left foot, which was the more contracted, was not in any way painful, while the right, abducted and pronated, produced pain in the knee. This was not relieved by stretching the calf-muscles but only after a valgus brace was worn. That shortening of the calf-muscles can operate to produce the knee pain independent of pronation is shown in Cases I and II. In Case I the stretching dissipated the pain without attention to the existing pronation; in Case II it was required in order to relieve pain continuing after the local symptoms of pronation had been overcome by braces.

Having accepted Dane's explanation of the knee phenomena associated with pronation, how shall those be accounted for which are held to be due to shortening of the

(1) Bradford & Lovett Orthop. Surg. 2d Ed., p. 626.
Schanz *Zeitschr. f. Orthop. Chir.* Ed. vi., p. 499.
(2) Dane, Trans. Am. Orthop. Assn., Vol. X, p. 45.

calf-muscles? With diffidence the view is expressed that here the symptoms are due to the pull made upon the capsule of the knee-joint by reason of the attachment of the plantaris muscle. This muscle, having origin from the inner aspect of the external head of the gastrocnemius, as well as from the posterior part of the knee capsule and uniting in most cases with the *triceps surae* to form the *tendo Achillis*, must partake on this account in any shortening of this muscle which may occur. If shortening is of sufficient degree, it is conceivable that the application of the heel to the ground in walking might produce the knee symptoms through the strain thus put upon the joint capsule. The explanation of the shortening of the calf-muscles is without the present discussion.

In resumé it is submitted:

1. That abnormal conditions of the foot may be the cause of pains in the knee with or without themselves presenting subjective symptoms.

2. Pronated and flat-foot being the most frequent cause of this character, it is possible for shortening of the calf-muscles to be the underlying cause of such knee pain in the presence of pronated foot or of contracted foot.

3. The attachment of the calf-muscles to the knee capsule through the medium of the plantaris may serve to explain this phenomenon.

Since writing the above there has come to my notice an article by Pal (*Wien. Med. Woch.* No. 14, p. 666—1901) describing six cases in which he has been able to determine flat-foot as the cause of the peculiar symptom-complex known as *meralgia paraesthetica*. This consists clinically in the appearance of paresthesias, pain, sensations of heat and cold, etc., occurring in the area of distribution of the external cutaneous nerve. In Pal's cases not only did the symptoms exist in the presence of flat-foot, but they were made to disappear by the mechanical treatment of this condition. Inasmuch as the symptoms in these cases might involve the region of the knee, and because of the coincidence in character with some of my own, this is thought worthy of mention. For the explanation of Pal's cases a different mechanism is necessary from that spoken of above.

CHAPTER X—NEUROLOGY

THE MORBID ANATOMY OF EPILEPSY, BEING A SUMMARY OF THE RESULTS IN ONE HUNDRED AND THIRTY AUTOPSIES

BY A. P. OHLMACHER, M. D.,

Director of the Pathological Laboratory of the Ohio Hospital for Epileptics at Gallipolis

It is three years since I had the privilege of appearing before this State Medical Society with a paper giving a brief review of the morbid anatomic aspects of 18 cases of epilepsy which had at that time been studied in the Pathological Laboratory of the Ohio Hospital for Epileptics.* Following this preliminary report came a detailed analysis of the clinical and pathologic aspects of 25 cases of epilepsy, published in the Bulletin of the Ohio Hospital for Epileptics (Vol. I., No. 2 and 3, 1898). It is now my desire to supplement these reports with a brief review of the principal features noted in a necroscopic study of 130 additional cases which have, to this moment, been subjected to examination. That the discussion will necessarily be limited to a few principal points you will readily understand, knowing the limitation set on a paper before a body of this kind. But before touching on the proper subject matter I ask you to pardon a digression while I remind you that the paramount task in which we have thus far been engaged has been the accumulation of material, and that we now have in the laboratory, properly preserved and in good condition for future study, a large collection, nay, an invaluable collection, of material representing epilepsy in its various phases.

*A Summary of Certain Studies in the Morbid Anatomy of Epilepsy. Transactions of the Ohio State Medical Society, Fifty-third Annual Meeting, 1898, pp. 226-282.

Most of this material has been subjected only to coarse or gross examination, and a wealth of valuable information remains to be exhausted by deliberate, detailed study. In fact we have amassed material bearing upon the pathology of epilepsy probably unique in amount and character in America. But even without the ultimate analysis which must remain for future research, a great deal of information has been gained, and to those of us who have been so fortunately situated as to have access to this material, a broadened knowledge of epilepsy has resulted—a knowledge that finds daily application in the medical supervision of our patient population. Nor has this gain in information been confined to epilepsy and the allied affections, for since postmortem observations have been made on 155 individuals dying of many incidental diseases, much has been acquired in general pathology and diagnosis, as is the case in any hospital where pathology is pursued.

Of the 130 autopsies making the basis of this report 73 were on males, 57 on females; 104 were adults and 26 children. From both the clinical and morbid anatomic standpoints it is possible to divide these cases into several groups. The first one embraces the cases of idiopathic major epilepsy, with or without epileptic dementia, in which the morbid anatomic features of the lymphatic constitution were disclosed. Of such cases there were 71, or approximately 55% of the whole. The second group includes cases of infantile cerebral paralysis associated with epilepsy and a mental status of imbecility or idiocy numbering 19, or 15% of the whole. The third group with 8 cases, or 6%, includes examples of senile epilepsy. In the fourth are 6 cases of syphilitic epilepsy, making 5%. Then there are 3 cases of cardiac epilepsy, 2 of paralytic dementia, 1 each of alcoholic and uremic epilepsy, and 1 due to cerebral tumor. Finally remaining are 13 doubtful cases unassignable even after autopsy.

Now the chief interest naturally attaches to the examples of idiopathic epilepsy, and here a confirmation of

previously expressed opinions has been obtained, opinions which hold that there is a close association between this nervous disease and the peculiar condition known as the lymphatic constitution, *status lymphaticus, constitutio lymphaticus,* lymphatism. This, a point of extreme importance in the pathology of epilepsy in my opinion, has been set forth with prominence and in detail in several of my former publications, and cannot be dwelt on at present. But in order to correct certain wrong impressions it should be made clear that one cannot expect to find the perfect anatomic picture of lymphatism in every case of idiopathic epilepsy, for, influenced profoundly as the characteristic lymphoid hyperplasias are by age, mode of death and intercurrent diseases, it is not reasonable to look to each victim of epilepsy as a typical example. In fact the perfect picture of lymphatism, with the persistent hyperplastic thymus, general lymphadenoid hyperplasia, and arterial hypoplasia is to be found only in children, youths, or young adults dying suddenly from accident, or one or the other abrupt modes peculiar to epileptics, or rapidly from disease while in a good state of nourishment and without the concurrence of those acute infections which affect the lymphatic structures. In epileptics over 30 years of age, in those dying of wasting diseases or from the profound marasmus of epileptic exhaustion, the evidences of lymphatism are masked, and sought only in such persistent, ineradicable features as narrowed arteries or the osseous deformities of rickets. As to the 71 cases here classified as idiopathic and lymphatic epileptics a goodly number proved to be typical examples with the prominent features of the lymphatic constitution unmistakable, and in the remainder one or more features still remained to decide their nature. The doubtful cases were all assigned to that category, and of the 13 thus disposed of I believe at least half belong in the class under consideration. The predominant brain change accompanying this class of cases was a gliosis of the cerebrum, taking the form of a diffuse super-

ficial gliosis of the cerebrum either hypertrophic or atrophic (doubtless depending on the stage attained), or of a localized sclerosis affecting certain parts more particularly, like the horns of Ammon and the hippocampal gyri. Concerning the mechanism of this gliosis I am strongly inclined to the opinion that it is in some way related to intracranial pressure, a view that has already been advanced in several quarters, but which still lacks final confirmation. Remotely, however, the peculiar conditions incident to lymphatism must be held accountable, and it is now pretty well established that lymphatism is one of the consequences of rickets, so that we come to rickets as the ultimate basis of epilepsy, as it seems likewise to be of several nervous disorders allied to epilepsy. If this conclusion, which has also been reached by clinical observation, is correct, then the problem of dealing with idiopathic epilepsy resolves itself into one of combating infantile rickets which we are now led to consider a nutritive (or possibly nutritive and infectious) disorder preventable by proper dietary and hygienic precautions in infancy. In other words, the problem of handling idiopathic epilepsy resolves itself into one of prevention and not of cure, for I believe idiopathic epilepsy, once established to the point of having produced changes in the neuroglia of the cerebrum, to be an absolutely incurable malady.

The second class in numerical importance contains the cases of infantile cerebral paralysis, and it is significant to observe that they reach the relatively high figure of 15% of the whole, a proportion exhibited in the living patient population of the hospital. Here a diversity of lesions were encountered such as are characteristic of this affection. These lesions, both diffuse and localized, may be divided into those due to mechanic violence like traumatism and pressure of escaped blood, and those resulting from meningo-encephalitis. As causative factors forceps or birth-injuries and meningeal infection are most prominent, and here again the question of remedy becomes one of prevention, that is those preventive measures which would guard

the infant's brain against traumatism during or after birth, and against infection, which we are inclined to believe reaches the meninges by way of the nasopharyngeal route.

Senile epilepsy represented by 8 cases showed brain lesions either of localized atrophic gliosis from arteriosclerosis of the cerebral arteries, or foci of old cerebral apoplexy or cerebral softening. In the three cases of cardiac epilepsy which appeared at a time of life to correspond with the heart lesion, advanced cardiac changes were found, and it is believed that the heart disease stood in direct causal relationship to the epilepsy.

In the syphilitic epileptics there were, besides a luetic history and late onset of epilepsy, either gummatous cerebral lesions or syphilitic cerebral endarteritis. Only one tumor was encountered in the present series of 130 cases—a cystic glioma of the cerebrum. But this hardly represents the proper proportional relationship, since in the 25 cases previously reported by me there were three cases in which intracranial tumors could be held responsible for the epilepsy.

And now, ladies and gentlemen of the Ohio State Medical Society, in bringing to an abrupt close this cursory presentation of a very important topic, I once more take the liberty of a digression.

Whatever the judgment passed upon the results of the work thus far accomplished in the Pathological Laboratory of the Ohio Hospital for Epileptics, it seems to me especially opportune to say that the scientific spirit represented by its foundation is one worthy of encouragement. I therefore feel it a duty to make certain acknowledgements to those authorities who have made our start possible: first, to the original Board of Trustees and Manager, who installed the laboratory; second, to the General Assembly of the State of Ohio which voted it financial support; third, to those of our Board of Trustees who stood steadfast for the continuance of the work, notably the Honorable George K. Nash, and the Honorable E. S. Wilson; and finally, to the present

Governor of the State of Ohio, who has, in various ways, shown his respect for our profession, and his sympathy with the broad scientific aims of our laboratory, I feel especially indebted.

DISCUSSION

Dr L. B. Tuckerman, Cleveland: I do not feel myself competent to discuss this paper because I do not know anything positive about epilepsy. I am in the position of most practicians. It has been practically all guesswork, and I think I am correct in stating my belief that the most important contribution to the exact knowledge of the pathology of epilepsy has been made by Dr Ohlmacher in this same hospital of southern Ohio, in Gallipolis. I think we ought to be proud, all of us, as members of the Ohio State Medical Society, as citizens of the State of Ohio, of a work so careful and thorough as has been done at this institution. It is such as to encourage us in every way.

Acute Anterior Poliomyelitis in the Adult

BY D. I. WOLFSTEIN, M. D., CINCINNATI

Acute poliomyelitis in the adult is not only a very interesting affection, but one of such rarity that each case deserves chronicling. A brief resumé is therefore herewith presented of a case which represents, I think, a typical instance of this malady.

J. W. M., aged 64, clergyman, had suffered for many years from dyspepsia; and, as he had noted that his powers of thought and concentration were thereby lessened and as with him mind rose superior to body, he had for a period of about two years previous to his attack systematically underfed himself. At the time of his seizure the patient was therefore not in good condition. From about February 1 to February 12, one year, Mr M. had felt vague symptoms which he had considered to be grip, and on February 12, the day preceding his stroke, he had fever and a rather severe prolonged chill.

On Sunday morning, February 13, the patient arose as usual, and went to his church for morning service. He

noticed that his left leg dragged slightly, and during the sermon others noticed that he used his left arm awkwardly and that it had a bluish look. The patient was able however to return to church for afternoon services, attributing his symptoms merely to tire. He even preached in the evening, left his church for the last time, and walked alone upstairs after reaching home. While attempting to disrobe he found that he could not use his hands well, and a moment later fell or rather slid helplessly to the floor. Dr H. J. Whitacre asked me to see the case with him one week later, and has kindly given me permission to study and publish the same. At this visit the foregoing facts were elicited, and also that there had never been the slightest pain nor any loss of consciousness. In fact, when I asked Mr M. whether he had ever during his lifetime lost consciousness he answered very wittily, "Never, Doctor! all the sense I ever had, I've always had."

Examination on February 20, 1900, disclosed complete paralysis of all four extremities. The paralysis was flaccid, the legs hung limp, the arms like flails. The patient could not move the arms below the shoulders, nor perform any movement with the hands. He could shrug the shoulders, move the head backwards and forwards and from side to side, and also bring the shoulder-blades together. The arms could not be rotated inwards, nor brought to the side of the chest when passively raised. In the whole domain of the cranial nerves there was not the slightest abnormality, hence it is unnecessary to recount the details of examination requisite to establish this fact. Intellection was as perfect as ever; rarely have I met a sufferer so thoroughly logical and optimistic. The legs could not be moved, though slight rotation of the hips was possible. Slight movement of the trunk could be made. The deep reflexes all over the body were absolutely gone—the plantar reflex was present. Vesical and rectal functions were normal, and have remained so throughout. No priapism. The sensation was in every respect normal. There was no diminution of any sense quality. Tactile, pain, temperature, pressure, and posture sense were in every respect perfect. One anomaly of sensation was present at this visit, which however never appeared subsequently. The patient was unable to name objects by the sense of feel, and could not recognize objects when placed in his hand while his eyes were closed. We had here therefore temporary loss of the so-called stereognostic

sense, but at my next visit all objects were promptly recognized. Astereognotism is usually associated with cerebral anesthesia, and I am at a loss to account for its presence here.

March 15, 1900. The condition as regards movement is unchanged, but all the muscles of the four extremities show atrophy of extreme grade. There is no response to very strong faradic currents, either through the nerve-trunks or of the muscles themselves. The bladder and rectum are normal. Astereognotism gone. The extremities feel cold. Electric response (faradic) obtained in the trapezius, scaleni, and rhomboids, the latter however very feeble and only with strong shocks. Respiration is free.

August 1, 1900. There was no deculiotus, the bladder and rectum were intact, and a slight progressive improvement was manifest in movements. The legs can be rotated in and out and the leg raised. The arms can be flexed at the elbow, and the whole arm raised. No change in electric reactions.

November 1, 1900. Electric reaction was still absent, atrophy was extreme, but improvement in volitional movement was marked. The patient turns from side to side in bed, raises the legs and extends same, but without power. The feet drop and cannot be raised, toes immovable. There is the merest beginning of flexion of the fingers, and opposition of the thumb and little finger. Flexion of the arm at the elbow, with pronation and supination is also accomplished.

May 1, 1901. The patient, whom I have kept under constant observation for the past year, has progressed quite steadily. With assistance he manages to move his legs and takes a few steps in a weak shambling manner, crosses his legs, flexes same, and holds them extended in the air. He is still unable to raise the feet. The arm movements are also better, flexion of the hands at the wrist and of the fingers can be done, but extension is impossible. The triceps however is able to extend the arm at any level. Flexion generally is much better than extension, pronation than supination. It is strange to see what a comparatively wide range of movement intrinsic nerve-force can accomplish when there is such extreme atrophy, and such utter failure of electric response. The vasomotor control is restored, the skin is equally warm and of good color. Electric reaction:—stimulation of the median, ulnar and musculospiral nerve-trunks

with strong faradic currents elicits response. Response is also present, but weak, in the triceps, deltoids, major pectorals, biceps, *brachialis anticus* in the arms; in the hands only the wrist flexors, long finger and thumb flexors, and the *opponens pollicis* respond. In the lower extremities strong currents induce contraction through the anterior crurals and internal popliteal trunks; and of the thigh adductors, the *quadriceps cruris*, the calf muscles, but very weak and feeble. All other phenomena were as previously described.

To recapitulate, our case represents a malady of sudden onset producing a maximum of disturbance at its inception, with subsequent moderate improvement. The paralysis is one of very wide distribution, affecting all the extremities and abolishing nearly all forms of movement. The sphere of implication is exclusively motor. The diagnosis was established further by: (1) the presence of an atrophic flaccid paralysis, with loss of electric response; (2) complete loss of reflexes; (3) absence of any sensory impairment; (4) preservation of vesical and rectal function. Of great value in the diagnosis are the negative findings as: (1) absence of all pain, and of all pain on pressure along the nerve-trunks; (2) absence of any febrile reaction, except as a precedent phase.

It is unnecessary to go into details with regard to differential diagnosis, but a few would seem of value. Multiple polyneuritis is the disease most apt to be confounded with the malady under discussion. The absence of pain, of pressure-pain along the nerve-trunks, of hyperesthesia and of other forms of sensory impairment sufficiently eliminates neuritis. There is one form of acute paralysis occurring in adults which must be excluded and that is Landry's paralysis. Our conception of this disease is much broader than were the ideas originally entertained by Landry and his immediate followers. We may now conceive Landry's paralysis to be a rapid ascending or descending atrophic paralysis, even with electric evidence of degeneration, though Landry himself considered the latter as not peculiar to his disease. One other criterion insisted upon by

Landry was the absence of anatomic lesions. This dictum too is disputed by the moderns, who describe various morbid alterations in this affection. Taken from a broad viewpoint however we must define Landry's paralysis a little more clearly, or else the picture becomes so blurred as to be unrecognizable. Cases which develop a rapid atrophic paralysis, commencing in the legs and soon involving the arms and often the muscles of the respiration and such muscular functions as are controlled in the medulla, are not easily to be confounded with acute poliomyelitis. In Landry's paralysis reaction of degeneration may be present, especially when the course is not so fulminant. In both diseases the bladder and the rectum are spared. The distinguishing features are (a)In Landry's paralysis it is not the rule to find the loss of muscle volume so extreme, nor is reaction of degeneration so uniformly present. (b) Sensory impairment of some form is usually present, with severe pain and febrile reaction. (c) The course is more rapid, involvement of the medulla with bulbar symptoms is not infrequent, and a fatal result may more often occur.

Hematomyelia or hemorrhage into the cord is another affection to be excluded. Aside from its more frequent connection with trauma, this condition is usually followed by paralysis of less extensive distribution, and as the site of the tubular central hemorrhage is generally in the gray matter, and especially in that around and posterior to the central canal, sensory symptoms are almost sure to occur. Cervical myelitis, whilst it may produce atrophic degenerative paralysis in the arms, gives us nonatrophic, nondegenerative spastic paraplegia of the legs, and besides there are sensory and vesical impairment.

The views as to the pathology of adult, as well as infantile, poliomyelitis have changed since the days of Charcot and Joffroy. With these authors and their more immediate followers the basic lesion was considered to be a primary essential degeneration of the anterior cornual motor ganglion-cells, which lesion might ensue in an acute,

subacute, or chronic form. Upon this was based a corresponding classification. The loss or destruction of these trophic muscle-centers was followed by atrophic degeneration in the corresponding muscles. Later observations (Archambault and Damaschino) have shown the lesion to be primarily a vascular one, consequent upon some form of irritant introduced into the cord by the blood-current and localizing in the area supplied by the central spinal artery. We have here therefore an acute inflammatory process of exudative character, *i. e.*, a myelitis with the accumulation of serum and corpuscular elements in the anterior gray matter, as well as the anterior portion of the cord generally. The vessels are engorged, the pia shows round-celled infiltration, the axis-cylinders are swollen and are seen in all stages of degeneration. The ganglion-cells are also swollen, show loss of chromatin substance, and reduction in size and number. The ganglion-cells are often surrounded by the exudate, and are destroyed.

The main point upon which modern pathology insists is that the alteration in the ganglionic and nervous elements is secondary to the inflammatory process. Another point is also maintained, *viz.*, that the ganglion-cells are not affected according to specific groups of cells, as Charcot taught, but their implication is dependent upon the localization of the irritant in the cord. Thus the ganglion-cells at a certain level may escape entirely, or a part or all at another level may be destroyed. Again the pressure of the exudate, or the direct action of the toxin, or the subsequent glia proliferation, may practically or completely destroy the cells. The subsequent restoration depends therefore directly upon the extent of the lesions. It is in this way that the early widespread paralysis with later recovery finds its explanation. In my case, in spite of the recovery of many of the voluntary movements, the muscles are still atrophic, and have not increased perceptibly in volume. Therefore in the case of a given muscle still capable of executing certain movements in obedience to the

will, some of its trophic cells in the anterior gray horns must still be intact or only partially destroyed. The character and course of the malady is thus easily understood.

The prognosis is of course bad, especially in so old a patient as Mr M. In a fair proportion of the recorded cases quite a good recovery was made. In most however there was left as permanent stamp of the insult, muscular weakness and more or less imperfect electric response. The muscles rarely regain their former volume. In attempting to explain the causation of these cases we are on uncertain ground. The conviction has grown however in later years that some irritant of toxic or infectious nature circulating in the blood-stream is the probable factor. The point of special predilection—the *locus minoris*—is in these cases in the domain of the central spinal artery. In my case the systematic underfeeding with prolonged mental effort may have especially weakened this vascular area. The immediate exciting cause may then have been some such toxic irritant as lies at the basis of influenza localizing in this predisposed area. Whether the febrile reaction and chill which immediately preceded the seizure were indications of the grip, or were manifestations accompanying the spinal inflammatory process, would be hard to decide. Certain it is that the influenza toxins have a strange and well-attested affinity for the cerebrospinal axis. As regards treatment I have not the conviction that any measures other than those promoting nutrition and guarding the patient generally were of any value. The customary measures were tried.

In conclusion it may be stated that because of its rarity of occurrence in the adult, as well as the difficulty in differentiation and the relatively good prognosis which one can make, I may be pardoned for introducing this subject to your attention.

CHAPTER IX.—MEMBERSHIP AND DELEGATES

PERMANENT MEMBERS THE OHIO STATE MEDICAL SOCIETY

CAPITALIZED: Life members.

Local Secretaries will please notify the Secretary of errors or omissions, and forward obituary notices with their annual catalogues.

Abbott, Charles N., Academy of Medicine.....Cincinnati, 1892
Albl, Michael A., Cuyahoga Co. Medical Society....Cleveland, 1892
Albers, John G.....Fulda, 1898
Albright, Charles W.....Milo, 1898
Alcorn, Eli G., Gallia Co. Medical Society.....Gallipolis, 1895
Alcorn, John B., Gallia Co. Medical Society.....Gallipolis, 1894
Alderdyce, Wm. W.....Cleveland, 1900
Aldrich, Chas. J., Cuyahoga Co. Medical Society...Cleveland, 1891
Aldrich, Daniel B., Ashtabula Co. Medical Society..Ashtabula, 1892
Allard, Lorenzo D., Pike Co. Medical Society....Portsmouth, 1894
Allen, Charles O.....Logan, 1895
Allen, Dudley P., Cuyahoga Co. Medical Society...Cleveland, 1885
Allen, George M., Academy of Medicine.....Cincinnati, 1892
Allen, Harry Sherwood, Gallia County M. S.....Gallipolis, 1901
Allen, Samuel E., Academy of Medicine.....Cincinnati, 1892
Anderson, Lewis C.....Greenville, 1898
Andre, Orrin C., Hempstead Mem'l Acad. of Med...Waverly, 1888
Archer, John R.....North Baltimore, 1892
Armentrout, Lyman W.....Mt. Vernon, 1892
Ayres, Wylie M.....Cincinnati, 1901
Ayres, Merritt M., N. W. O. M. A.....Continental, 1900
Ayres, Stephen C., Academy of Medicine.....Cincinnati, 1877

Backus, Leonard C., Tri-State Medical Society.....Fayette, 1895
Bailey, Gilbert L., Academy of Medicine.....Cincinnati, 1901
Bain, Frank D., Northwestern Ohio Med. Ass'n.....Kenton, 1885
Baker, Albert R., Cuyahoga Co. Medical Society...Cleveland, 1886
Baker, Chas., Darke Co. M. S.....Palestine, 1900
Baker, Joseph P., Hancock Co. Medical Society.....Findlay, 1891
Baker, William O., N. E. O. M. A.....Louisville, 1882
Baker, Edwin W.....Clyde, 1898
Baldwin, James F., Academy of Medicine.....Columbus, 1875

Ballinger, John B.....Webster, 1880
Barker, Fred D.....Dayton, 1898
Barnes, Albert S. .....Newark, 1901
Barnes, B. Frank, Perry Co. M. S.....Hemlock, 1900
Barnhill, James U., Academy of Medicine.....Columbus, 1884
Barrere, D. M., Montgomery Co. Medical Society....Dayton, 1884
Barton, Robt. S., Tuscarawas Co. Medical Society.....Baltic, 1898
Bates, Fred L., Allen Co. Medical Society.....Lima, 1890
Battles, Mary M., Ashtabula, Lake and Geauga Co. M. S.....
.....Ashtabula, 1897
Bauer, Milton M., N. E. O. M. A.....Lake, 1884
Beardsley, C. E., N. W. O. M. A.....Ottawa, 1869
Beck, John S., Montgomery Co. Medical Society.....Dayton, 1879
Beckwith, Seth W., Toledo Medical Association.....Toledo, 1892
Beebe, Brooks F., Academy of Medicine.....Cincinnati, 1901
Beers, A. M., Tuscarawas Co. Med. Society..Newcomerstown, 1882
Beery, George O.....Lancaster, 1899
Bell, David B.....Fostoria, 1900
Bell, Read L., Clarke Co. Medical Society.....Springfield, 1899
Belt, John H., Cleveland Medical Society.....Cleveland, 1897
Belt, Richard C., Miami Valley Medical Society.....Milford, 1892
Belts, Charles.....Toledo, 1901
Bennett, W. C., Morrow Co.....Mt. Gilead, 1892
Bertolette, Harry B., Wayne Co. Medical Society.....Shreve, 1896
Bessey, J. Mortimer, Toledo Medical Association.....Toledo, 1887
Bethauser, C. M., Academy of Medicine.....Columbus, 1895
Bettmann, Henry W., Academy of Medicine.....Cincinnati, 1901
Betts, Charles, Toledo Medical Society.....Toledo, 1901
Binder, Albert, Northwestern Ohio Med. Ass'n.....Ottoville, 1899
Bird, Edw. H., N. W. O. M. A.....Dupont, 1892
Bivans, William Allen, Brown Co. M. S.....New Hope, 1892
Black, Albert P.....Bradner, 1899
Blackburn, Marinda E., Academy of Medicine.....Columbus, 1895
Blair, Benjamin H., Warren Co. Medical Society....Lebanon, 1892
Blair, Harry W.....Mt. Vernon, 1900
Blake, Francis W., Academy of Medicine.....Columbus, 1892
Blake, Wm. H., Central Ohio Medical Society.....Shadeville, 1878
Blakeley, Geo. W., Fayette Co. M. S.....Washington C. H., 1900
Bland, Jerome, Crawford Co. Medical Society.....Bucyrus, 1892
Blandenhorn, Henry, U. M. A. N. E. O.....Orrville, 1895
Blazer, Harold E., Eastern Ohio Medical Ass'n...Salineville, 1897
Bleile, Allen M., Academy of Medicine.....Columbus, 1882
Blickensderfer, Jos., Tuscarawas Co. M. S., New Philadelphia, 1897
Bliss, Chester B., Clarke Co. Medical Society.....Springfield, 1899
Bodman, Lewis H., Toledo Medical Association.....Toledo, 1892

Boerstler, Geo. W.....Lancaster, 1870
Bohl, John, Sr., Washington Co. Med. Society....Watertown, 1892
Bohlender, E. E., Montgomery County M. S.....Dayton, 1901
Bond, John W., Toledo Medical Association.....Toledo, 1892
Bonifield, Charles Lybrand, Academy of Med.....Cincinnati, 1892
Bonner, Calvin A., Montgomery Co. Med. Society....Dayton, 1892
Bonner, Horace, Montgomery Co. Medical Society...Dayton, 1890
Boone, Jos. S., Belmont Co. Med. Society...Powhattan Point, 1892
Bown, Herbert H., Guernsey Co. Med. Society..Pleasant City, 1899
Boyd, James P., N. E. O. M. A.....Akron, 1892
Bozman, Harden E., E. O. M. S.....New Alexandria, 1900
Bradford, William U.....Cambridge, 1896
Brady, Mifflin B., Academy of Medicine.....Cincinnati, 1892
Bragg, William N.....Reading, 1901
Brand, Walter W., Toledo Medical Ass'n.....Toledo, 1896
Brannan, Thomas H., Tuscarawas Co. Med. Soc., Canal Dover, 1884
Brattain, George E., N. W. M. S.....Payne, 1901
Brayton, Asa, N. W. O. M. A.....Carey, 1892
Breck, Theo. B., Cleveland Medical Society.....Hudson, 1900
Brent, Columbus P., Academy of Medicine.....Cincinnati, 1892
Briggs, Charles E., Cleveland Med. Society.....Cleveland, 1901
Brockett, Andrew J., Cleveland Med. Society.....Cleveland, 1874
Brokaw, Wm. F., Cleveland Medical Society.....Cleveland, 1900
Brown, E. O. S.....Avon, 1895
Brown, Ernest E., Cleveland Medical Society.....Cleveland, 1901
Brown, H. M., Academy of Medicine.....Cincinnati, 1882
Brown, J. Alfred.....Germantown, 1886
Brown, John Edwin, Academy of Medicine.....Columbus, 1892
Brown, Richard A.....Circleville, 1896
Brown, Wilmont E.....Coolville, 1900
Bruehl, Gust., Academy of Medicine.....Cincinnati, 1892
Bruner, Wm. E., Cleveland Medical Society.....Cleveland, 1897
Brunning, F., Academy of Medicine.....Cincinnati, 1901
Brush, Edmund C., Hildreth District M. S.....Zanesville, 1878
Buckingham, John M., Clarke Co. Med. Society...Springfield, 1885
BUCKNER, James H., Academy of Medicine.....Cincinnati, 1863
Buechner, Wm. L., Mahoning Co. Med. Soc....Youngstown, 1879
Bunn, Jas. W., Adams Co. Medical Society.....West Union, 1872
Bunts, Frank E., Cleveland Medical Society.....Cleveland, 1892
Burnham, R. D., Erie Co.....Piqua, 1898
Burns, William A., Montgomery County M. S.....Dayton, 1901
Buttemiller, John C., Academy of Medicine.....Cincinnati, 1897

Caldwell, C. E., Academy of Medicine.....Cincinnati, 1901
Caldwell, John L., Pike Co. Medical Society.....Waverly, 1894

Caldwell, Jas. S., Academy of Medicine.....Cincinnati, 189
Calhoun, S. Frederick, Cleveland Medical Soc.....Cleveland, 1901
Calhoun, Wm. M., Union M. A., Columbus...East Liverpool, 189
Callinan, D. F.....Corning, 1892
Campbell, Elizabeth, Cincinnati Acad. of Med.....Cincinnati, 1900
Campbell, Oscar B., Cleveland Medical Society....Cleveland, 1892
Carothers, Robert, Academy of Medicine.....Cincinnati, 1901
Carpenter, Eugene G., Cleveland Medical Society..Columbus, 189
Carpenter, Julia W., Academy of Medicine.....Cincinnati, 1879
Carr, Edmund C.....Coshocton, 1900
Carrick, Anthony L., Academy of Medicine.....Cincinnati, 1871
Carroll, Travis .....Cincinnati, 1901
Carson, Archibald I., Academy of Medicine.....Cincinnati, 189
Carson, Frank D., Holmes Co. Medical Society.....Benton, 189
Case, Freeman D., Ashtabula Co. Medical Society, Ashtabula, 188
Chadbourne, Theodore L., Gallia County M. S.....Gallipolis, 190
Chadwick, Leroy S., Cuyahoga Co. Med. Society...Cleveland, 189
Chamberlin, Chas S.....Kinsman, 189
Chaney, Sylvester F., Highland Co.....Pricetown, 189
Chapman, Byron, N. E. O. M. A.....Copley, 18
Chapman, Geo. L.....Toledo, 18
Chapman, Wm. C., Toledo Medical Ass'n.....Toledo, 18
Cherry, Wilbur T.....McArthur, 19
Chidester, Cyrus W.....Delaware, 18
Chisholm, Horatio, Marion Co. Medical Society.....Marion, 18
Chrisman, Claud N., Montgomery County M. S.....Dayton, 19
Clapp, Harold T., Cleveland Medical Society.....Cleveland, 18
Clark, C. F., Academy of Medicine.....Columbus, 18
Clark, Frank S., Cleveland Medical Society.....Cleveland, 18
Clark, John A., Belmont County Medical Society.....Glencoe, 19
CLARK, JOHN H., Champaign Co. M. S...Mechanicsburg, 18
Clark, Myron S., Mahoning Co. Med. Society...Youngstown, 18
Clarke, Ida, Mahoning Co. Medical Society.....Youngstown, 18
Clay, Wm. P.....Mendon, 1
Clemson, George W., Perry Co. Medical Society..Thornville, 1
Cleveland, John L., Cincinnati Acad. of Med.....Cincinnati, 1
Clevenger, Richard E., N. W. O. M. S....North Washington, 1
Clouse, Geo. M., Academy of Medicine.....Columbus, 1
Coates, Benj. O., Cleveland Medical Society.....Cleveland, 1
Cobb, Fred A., N. W. O. M. S.....Toledo, 1
Coldham, Wm. W., Toledo Medical Ass'n.....Toledo, 1
Cole, A. P., Ross Co. Medical Society.....Chillicothe, 1
Coleman, Nathaniel R., Academy of Medicine.....Columbus, 1
Coleman, Warren, Miami Co. Medical Society.....Troy, 1

Collamore, Geo. A., Toledo Medical Ass'n.....Toledo, 1880
Collins, Milton H., Clarke Co. M. S.....South Charleston, 1890
Colville, George H., Belmont Co.....Circleville, 1887
Colville, Robert W.....Mt. Vernon, 1899
Conard, George R., Clinton Co. M. S.....New Vienna, 1890
CONKLIN, W. J., Montgomery Co. Med. Soc.....Dayton, 1868
Cone, Stephen E., Cincinnati Acad. of Med.....Cincinnati, 1900
CONNER, PHINEAS S., Academy of Medicine..Cincinnati, 1868
Cook, George Fred, Butler Co. Medical Society.....Oxford, 1885
Cook, Jos. E., Cleveland Medical Society.....Cleveland, 1895
Cooper, Albert, Central Ohio Medical Society.....Columbus, 1881
Cooperrider, Chas. A., Academy of Medicine.....Columbus, 1892
Cope, Ellis C., Belmont Co. Medical Society.....Barton, 1895
Corbin, Lee, Montgomery Co. Med. Society.....Dayton, 1892
Corlett, Wm. T., Cleveland Medical Society.....Cleveland, 1882
Corson, Orrillus M., Butler Co. Med. Society....Middletown, 1879
COTTON, J. D., Washington Co. Medical Society..Marietta, 1852
Courtright, Dudley W., Pickaway Co.....Circleville, 1898
COURTRIGHT, GEO. S.....Lithopolis, 1867
Courtright, Theodore E.....Columbus, 1899
Covington, P. D., Logan Co. M. S.....Bellefontaine, 1901
Cowell, Willard M. .....Columbus, 1898
Cowles, Geo. E., Delaware Co. M. S.....Ostrander, 1900
Cox, John M., Ross Co. Medical Society.....South Salem, 1877
Crane, A. Melville, Marion Co. Medical Society.....Marion, 1881
Crawford, Andrew J.....Glouster, 1896
Crile, Geo. W., Cleveland Medical Society.....Cleveland, 1892
Cromer, Peyton E., Miami Co. M. S.....Piqua, 1900
Crump, Alex. A., Jr., Holmes Co. M. S.....Millersburg, 1892
Culbertson, J. C.....Cincinnati, 1874
Culbertson, Louis Rogers.....Zanesville, 1896
Cushing, Edward F., Cuyahoga Co. M. S.....Cleveland, 1892
CUSHING, Henry K., Cuyahoga Co. M. S.....Cleveland, 1857
Custer, Harry J., Columbus Acad. of Medicine.....Columbus, 1900

Dandridge, Nathaniel P., Academy of Medicine..Cincinnati, 1871
Darbyshire, Morris A., N. W. O. M. S.....McComb, 1900
Darrah, Jos. Wilson.....Martin's Ferry, 1897
Davidson, N. P., Union Co. Medical Society.....Hilliards, 1890
Davis, Ben., Clarke Co. Medical Society.....New Carlisle, 1895
Davison, John F., Northern Ohio M. S.....North Amherst, 1893
Davisson, J. Alexander, Preble Co. M. S.....Dayton, 1896
Death, Hugh J., Warren Co. Medical Society.....Franklin, 1892
DeFord, Justin M., Darke Co. M. S.....Wagerman, 1901

De La Barre, Paul.....Port Clinton, 1892
Denman, Wm. C., Marion Co. Medical Society.....Marion, 1882
Deuschle, Wm. D., Academy of Medicine.....Columbus, 1885
Devers, A. B., Academy of Medicine.....Cincinnati, 1901
DeVilbiss, Allen, Toledo Medical Association.....Toledo, 1887
Dick, Wm. L., Academy of Medicine.....Columbus, 1892
Dickey, Thos. A., Butler Co. Medical Society.....Middletown, 1879
Dine, Colson L., N. W. O. M. A.....Minster, 1893
Dixon, Myrwood T., Academy of Medicine.....Columbus, 1895
Dolina, John F., Montgomery Co. Medical Society...Dayton, 1892
Dorman, Harry W., Ashtabula Co. Med. Society...Ashtabula, 1886
Dorsey, Joseph F.....Dresden, 1894
Driscoll, Park B., Champaign Co. M. S.....Rosewood, 1899
Dugan, John P., Clarke Co. Medical Society.....Springfield, 1899
Duncan, Arthur M., Crawford Co. Medical Society..Bucyrus, 1886
Duncan, James A., Toledo Medical Association.....Toledo, 1874
Dunham, John M., Academy of Medicine.....Columbus, 1895
Dunlap, Charles O.....McArthur, 1881
Dunn, Oscar B.....Ironton, 1900
Dutton, Chas. F., Cuyahoga Co. Medical Society...Cleveland, 1880

Eakins, Jehu, Gallia Co. Medical Society.....Patriot, 1894
Eastman, W. H.....Levering, 1901
Edwards, Isaac C.....Columbus, 1900
Ehret, Grattan A., Cleveland Medical Society.....Cleveland, 1900
Eichberg, Joseph, Academy of Medicine.....Cincinnati, 1882
Ely, J. Sykes, Belmont Co. Medical Society.....Barnesville, 1892
Emerick, Edson J., Central Ohio Med. Society.....Columbus, 1895
Emmons, Davis R., Champaign Co. M. S.....N. Lewisburg, 1895
Ervin, Norman B., Sandusky Co. Med. Society...Gibsonburg, 1891
Erwin, Jas. J., Cleveland Medical Society.....Cleveland, 1898
Esch, Jos. P., Erie Co. Medical Society.....Huron, 1892
Evans, Arthur E., Central Ohio Medical Society...Columbus, 1882
Evans, Otho, Warren Co. Medical Society.....Franklin, 1892
Evans, George B., Montgomery Co. Med. Soc.....Dayton, 1892
Everts, Orpheus, Academy of Medicine.....Cincinnati, 1885
Eyleer, Oliver Rodney.....Cynthiana, 1901

Faber, Chas. A., Toledo Medical Ass'n.....Toledo, 1892
Farnsworth, Geo. B., Cleveland Medical Society....Cleveland, 1895
Fassig, John M., Muskingum Co. Med. Society....Zanesville, 1893
[illegible]cett, R. C., Union Med. Ass'n of Columbiana....Geneva, 1896
[illegible]r, John U., Northwestern Ohio Med. Ass'n, Archbold, 1899
[illegible]ustav R., Cleveland Medical Society.....Cleveland, 1897
[illegible]orge W., Academy of Medicine.....Cincinnati, 1892

Finley, Mary Jordan, Academy of Medicine.....Mansfield, 1897
Fisher, Herschel, Warren Co. Med. Soc.....Lebanon, 1901
Fisher, Charles E., Toledo Medical Society.....Toledo, 1901
Fisher, Phillip.....Cincinnati, 1892
Fitzpatrick, Thomas V., Academy of Medicine.....Cincinnati, 1890
Fitzsimmons, Jas. F., Crawford Co. M. S.....Bucyrus, 1892
Flemming, James C.....Carlisle, 1892
Floyd, James C. M., Jefferson Co. Med. Soc....Steubenville, 1884
Foertmeyer, Charles H., Academy of Medicine.....Cincinnati, 1892
Follett, Alfred K.....Granville, 1900
Foltz, Tobias H., N. W. O. M. A.....Lima, 1892
Formorin, John L., Clermont Co. Medical Society..Marathon, 1892
Foshay, P. Maxwell, Cleveland Medical Society....Cleveland, 1893
Foster, E. Marion, Hempstead Acad. of Med....Portsmouth, 1900
Foster, G. F., Ross Co. Medical Society.....Kingston Centre, 1882
Fowler, Silas W. .....Delaware, 1873
Fox, Joseph F., Tuscarawas Co. M. S.....New Philadelphia, 1895
Fox, Curtis L., Ashtabula Co. Medical Society....Kingsville, 1897
Fraker, Harvey C., Academy of Medicine .....Columbus, 1895
Francis, Albert W., Brown Co. Medical Society.....Ripley, 1892
Fraser, John M., Cuyahoga Co. Medical Society...Cleveland, 1892
Fraunfelter, James, N. E. O. M. A.....Canton, 1886
Freiberg, Albert H., Cincinnati Acad. of Med.....Cincinnati, 1900
French, Edward H., Butler Co. M. S.....Hamilton, 1901
French, James M., Academy of Medicine.....Cincinnati, 1892
Friedlander, Alfred, Academy of Medicine.....Cincinnati, 1901
FULLER, S. W.....Bellefontaine, 1853
Fullerton, Erskine B., Academy of Medicine.....Columbus, 1894

Gage, Rawson S., Washington Co. M. S.....Qualey, 1892
Gahm, John L., Hempstead Academy of Medicine....Jackson, 1895
Gaither, Alfred, Cincinnati Academy of Medicine..Cincinnati, 1899
Gale, Geo. T., Washington Co. M. S.....Newport, 1888
Garlick, H. Stowe, Academy of Medicine.....Cincinnati, 1901
Geier, Otto P., Academy of Medicine.....Cincinnati, 1901
Geissinger, Henry W.....Grove City, 1900
George, John F., N. W. O. M. S.....Ft. Jennings, 1900
Geyer, Joseph L., Muskingum Co. M. S.....Norwich, 1892
Gibbon, Harmon B., N. W. O. M. A.....Tiffin, 1891
Gillette, Wm. J., Toledo Medical Ass'n.....Toledo, 1892
Gilliam, D. Tod, Academy of Medicine.....Columbus, 1873
Gilliam, Earl M. .....Columbus, 1890
Glenn, William W., Highland Co. Med. Society....Hillsboro, 1895
Goebel, Anna M., Allen Co. Medical Society.....Lima, 1892

Goetz, F. Eugene, Cleveland Medical Society.....Cleveland, 1892
Goodhue, George, Montgomery Co. Med. Society....Dayton, 1884
Good, Harman .....Sulphur Grove, 1900
Goode, Burwell P., Academy of Medicine.....Cincinnati, 1892
Gordon, Patrick A.....Junction City, 1894
Gordon, John L., Columbus Acad. of Med.....Columbus, 1900
Gores, Ferdinand C., Academy of Medicine.....Cincinnati, 1892
Goss. Clarence W.....Lancaster, 1895
Goss, John H., Central Ohio Medical Society.....Lancaster, 1884
Gotwald, D. King, Clarke Co. Medical Society....Springfield, 1899
Graefe, Chas., Erie Co. Medical Society.....Sandusky, 1891
Graefe, Wm., Erie Co. Medical Society.....Sandusky, 1874
Granger, Francis M., Highland Co. M. S.....Russell, 1881
Gray, Francis C., Montgomery Co. M. S.....Dayton, 1894
Green, Henry S., Morrow Co.....Cardington, 1878
Green, Joseph H., Miami Co. Medical Society.....Troy, 1899
Green, Myron D., Academy of Medicine.....Cincinnati, 1901
Greenamyer, Peter S., N. E. O. M. A.....Orrville, 1901
Greene, Duff W., Montgomery Co. Med. Society.....Dayton, 1882
Greene, Lindly M., Highland Co. Med. Society..Wilmington, 1900
Grier, Otto P.....Cincinnati, 1901
Griffis, Frank C.....Mt. Gilead, 1896
Grimm, Adolph, Academy of Medicine.....Cincinnati, 1892
Groves, John E., Tuscarawas Co. Med. Soc.....Uhrichsville, 1884
Grube, Willis W.....Toledo, 1901
Guerin, Zophar F., Central Ohio Medical Society..Columbus, 1884
Guiss, Wm. H., Crawford Co. Medical Society.....Tiro, 1895
Guntrum, Wm. E., Darke Co. Medical Society....Greenville, 1900
Gutermuth, Wm. C.....Versailles, 1899

Haag, Daniel E., Lucas Co. Medical Soc.....Liberty Center, 1901
Halderman, Stephen S., Hempstead Med. Acad..Portsmouth, 1896
Hall, Emerson V.....Convoy, 1898
Hall, Harry L.....Toledo, 1901
Hall, Joseph A., Academy of Medicine.....Cincinnati, 1899
Hall, Rufus B., Academy of Medicine.....Cincinnati, 1884
Hall, Willard A., Ross Co. Medical Society.....Chillicothe, 1896
Hamann, Carl A., Cleveland Medical Society.....Cleveland, 1895
Hamer, William W., American Medical Ass'n..Bellefontaine, 1895
Hamilton, Charles S., Academy of Medicine.....Columbus, 1891
Hamilton, Lewis D., Marion Co. Medical Society.....Marion, 1896
Hamilton, Norval A.....Franklin, 1901
Hamilton, W. D., Academy of Medicine.....Columbus, 1886
Haney, Josiah C.....Dalton, 1896
Hannah, Ralph B., Brown Co. Medical Society...Georgetown, 1900

Hanson, David S., Cleveland Medical Society.....Cleveland, 1898
Hardy, Irene .....Massillon, 1897
Harper, Edward A.....Columbus, 1896
Harris, Ezra C., Clarke Co. Medical Society.....Springfield, 1899
Harris, James H. .....Clifton, 1899
Harrison, Eugene B., N. W. O. M. A.....Napoleon, 1869
HART, BENJAMIN F., Washington Co. M. S.....Marietta, 1854
Hart, Charles S. .....Marietta, 1895
Hart, Romeyn B., Jr., Washington Co. M. S.....Marietta, 1892
Hart, Samuel, Washington Co. M. S.....Marietta, 1887
Hartman, Geo. W., N. W. O. M. A.....Wauseon, 1887
Hartman, Samuel D., Miami Co. M. S.....Tippecanoe City, 1874
Hasencamp, Oscar, Toledo Medical Ass'n.....Toledo, 1891
Hathaway, Harrison, Toledo Medical Ass'n.....Toledo, 1874
Hatch, Chas. A.....Newark, 1893
Hatsher, Harry H., Montgomery Co. M. S.....Dayton, 1901
Havlicek, Frank J., Cleveland Medical Society.....Cleveland, 1901
Hawley, Edwin P., Cuyahoga Co. Medical Society..Cleveland, 1892
Hawes, Sylvester A., Darke Co. Medical Society....Arcanum, 1900
Hayes, John D., Perry Co. Medical Society.....Somerset, 1895
Haynes, John T., Erie Co. Medical Society.....Sandusky, 1893
Hayward, Edwin T.....Waterford, 1896
Heady, James F., Academy of Medicine.....Glendale, 1899
Hecker, Edwin A., Darke Co. Med. Society.....New Madison, 1900
Heckler, Frank A. .....Columbus, 1900
Heffner, George W. .....Circleville, 1895
Heistand, Howard E.....Kenton, 1901
Heidingsfeld, Meyer L., Academy of Medicine ....Cincinnati, 1901
Heiter, Carl, Erie Co. Medical Society.....Sandusky, 1875
Helmick, George W.....Harrisburg, 1900
Hendershot, Byron C., Tuscarawas Co. M. S. New Philadelphia, 1897
Henderson, Carl W.....Waynesville, 1901
HENDERSON, DAVID W. .....Marysville, 1856
Henderson, Robert, Champaign Co. M. S.....Urbana, 1892
Henderson, Geo. W., N. W. O. M. A.....West Cairo, 1892
Henderson, Lutrelle T. .....Marysville, 1899
Henderson, Grailey .....Marysville, 1899
Hendley, Frank W., Academy of Medicine.....Cincinnati, 1892
HENDRIXSON, HUGH, Academy of Medicine..Columbus, 1868
Hendrixson, Oliver P., Columbus Acad. of Med...Columbus, 1900
Hendrixson, Mrs. Ola S., Columbus Acad. of Med..Columbus, 1900
Herrick, H. Burt, Cleveland Medical Society.....Cleveland, 1895
Hersh, Edward G., Hancock Co. Medical Society...McComb, 1892
Hershiser, Henry K., N. W. O. M. S.....Tiffin, 1900

Heston, E. N. .....Thurston, 1900
Heston, Jos. Z.....Amesville, 1898
Hewetson, Alex. H., Belmont Co.....St. Clairsville, 1894
Hiestand, Ezra B., N. W. O. M. A.....Kenton, 1884
Higgins, Charles H., Muskingum Co. M. S.....Sonora, 1900
Hill, William W., Wood Co. Medical Society.....Weston, 1892
Hillkowitz, William, Academy of Medicine.....Cincinnati, 1892
Hiner, Solomon B., Allen Co. Medical Society.....Lima, 1874
Hines, J. Arthur.....Van Wert, 1879
Hobson, John A., Belmont Co. Medical Society.....Flushing, 1891
Hobson, Joseph F., Cleveland Medical Society.....Cleveland, 1897
HOFF, JOSEPH W., Meigs Co. Medical Society..Pomeroy, 1872
Holcomb, Calvin B., Perry Co.....Corning, 1898
Holdren, George W. .....Bloomingsburg, 1892
Holliday, William Wallace, Cuyahoga Co. Med. Soc.Cleveland, 1892
Holliday, Benj. W., Cuyahoga Co. Med. Society...Cleveland, 1875
Hollister, Geo. A. .....Toledo, 1897
Holman, Austin W. .....Circleville, 1895
Holmes, Christian R., Academy of Medicine.....Cincinnati, 1892
Holst, E. Bertram, N. W. O. M. S.....Haskins, 1901
Holston, John G. F., Muskingum Co. M. S.....Zanesville, 1892
Holt, Oliver P., Academy of Medicine.....Cincinnati, 1901
Homes, Will W.....Columbus, 1895
Hoover, Charles F., Cleveland Medical Society....Cleveland, 1896
Hoover, Collins M., Union Medical Society.....Alliance, 1885
Hoover, Lewis S., Miami County M. S.....Laura, 1901
Hoover, Thos. C., Academy of Medicine.....Columbus, 1891
Hoppe, Herman H., Academy of Medicine.....Cincinnati, 1892
Hottendorf, Louis P., Academy of Medicine.....Cincinnati, 1892
Hough, Charles A., Warren Co. Medical Society.....Lebanon, 1890
Hough, Wayland S., Summit Co. M. S.....Cuyahoga Falls, 1875
Hous, George W., Montgomery Co. Med. Society....Clayton, 1892
House, Lindley F., Highland Co. Med. Soc...Sinking Spring, 1899
House, Chas. F. .....Painesville, 1897
House, August F., Cleveland Medical Society.....Cleveland, 1880
Howard, William T., Cleveland Medical Society....Cleveland, 1895
Howard, Adams B., Cleveland Medical Society....Cleveland, 1897
Howell, Conrad A. .....Columbus, 1901
Howell, J. Morton .....Reibold, 1892
Howell, W. E. .....Gallipolis, 1901
Howells, James Owen, Belmont Co.....Bridgeport, 1897
Hubbard, Thomas, Toledo Medical Ass'n.....Toledo, 1889
[illegible]dson, J. Franklin, N. E. O. M. A.....Canton, 1892
[illegible]hes, E. E.....Oak Hill, 1895

Hughes, F. M. .....Sandusky, 1892
Hughes, Dorrance E. .....Delaware, 1895
Hughey, James W. .....Washington C. H., 1892
Hulick, John W., Clarke Co.....Springfield, 1898
Hulin, O. W., Union Medical Ass'n of N. E. O....Greenford, 1895
Humiston, Wm. H., Cleveland Medical Society.....Cleveland, 1880
Humphrey, William H., Greene Co. Med. Soc. Yellow Springs, 1899
Humphreys Charles H., Montgomery Co. Med. Soc...Dayton, 1892
Hunt, Abram H.....Wooster, 1892
HURD, ANSON, Hancock Co. Medical Society.....Findlay, 1870
Hussey, Millard F., Shelby Co. Medical Society.....Sidney, 1892
Husted, Eugene G., Darke Co. Medical Society...Beamsville, 1900
Hutchings, Stanley R., Clarke Co. Med. Soc.....Springfield, 1899

Iglauer, Samuel, Academy of Medicine.....Cincinnati, 1901
Ikirt, George P., E. O. M. A.....East Liverpool, 1882
Ingersoll, Ebenezer J.....Columbus, 1900
Ingersoll, John M., Cleveland Medical Society.....Cleveland, 1897
Ireland, John E.....Washington C. H., 1887
Ireland, Stephen A. .....Washington C. H., 1892
Irvin, John W., Ashland Co.....Magnetic Springs, 1896

Jacobs, Harold H., N. E. O. M. A.....Akron, 1892
Jacobs William C. .....Akron, 1892
Jacobson, Julius H., Lucas Co. M. S.....Toledo, 1901
James, Albertus D.....Mt. Gilead, 1892
James, Wm. S., Cleveland Medical Society.....Cleveland, 1897
Jamison, J. Ross, Wayne Co.....Apple Creek, 1898
Jenkins, Morgan J., Central Ohio Medical Society..Plain City, 1895
Jenks, Wm. O., Cuyahoga Co. Medical Society..Nottingham, 1892
Jenner, Henry G., Montgomery Co. Medical Society..Dayton, 1897
JENNINGS, ELLIS, Montgomery Co. M. S.....Dayton, 1867
Jennings, Gainor, Miami Co. Medical Society...West Milton, 1892
Jerome, Mark, Lucas Co. Medical Society.....Toledo, 1901
Jewett, Henry S., Montgomery Co. Medical Society...Dayton, 1871
Johnson, Fred L. .....Worthington, 1897
Johnson, Alice M., Central Ohio M. S.....Columbus, 1895
Johnston, Arthur W., Academy of Medicine.....Cincinnati, 1899
Johnstone, J. Ambrose, Academy of Medicine.....Cincinnati, 1901
Jones, Harry S.....Columbus, 1895
Jones, Wm. A. .....Toledo, 1892
Jones, L. M., Greene Co. Medical Society.....Jamestown, 1892
JONES, JOHN D., Cuyahoga Co. Med. Society..Cleveland, 1870
JONES, RICHARD E., N. W. O. M. A.....Gomer, 1863
JONES, THOMAS W.....Columbus, 1847

Joseph, Leopold, Academy of Medicine.....Cincinnati, 1892
Judkins, William, Academy of Medicine.....Cincinnati, 1892
Judy, Charles S. Montgomery Co. M. S.....Miamisburg, 1896
Junkerman, George S., Academy of Medicine.....Cincinnati, 1892

Kaestlen, Samuel E., Cleveland M. S.....Cleveland, 1892
Kahler, J. Frank, Guernsey Co.....Quaker City, 1898
Kahn, Louis, Academy of Medicine.....Columbus, 1895
Kautz, Jas. W., Brown Co. Medical Society.....Arnheim, 1892
KAY, ISAAC, Clarke Co. Medical Society.....Springfield, 1853
Kay, Clarence H., Clarke Co. Medical Society....Springfield, 1899
Keck, Peter A., Academy of Medicine.....Cincinnati, 1892
Keller, Lester .....Ironton, 1900
Keller, Thomas F., N. W. O. M. S.....Toledo, 1887
Kemp, Lucia, Crawford Co. Medical Society.....Bucyrus, 1892
Kendig, Elias V., Ashland Co. Medical Society....Hayesville, 1874
Kerns, J. T. Walpole, E. O. M. S.....Bellaire, 1892
Kiely, William E., Academy of Medicine.....Cincinnati, 1892
Kiester, Wm. H. .....Arcanum, 1899
Kimmell, Jacob A., Hancock Co. Medical Society....Findlay, 1892
King, John L., Marion Co. Medical Society.....Martel, 1884
King, John R., Academy of Medicine.....Cincinnati, 1892
King, Watson L. .....Granville, 1899
Kinnison, Ulysses L., Jackson Co. Med. Society...Limerick, 1899
KINSMAN, DAVID N., Academy of Medicine....Columbus, 1864
Kirkley, Cyrus A., Toledo Medical Ass'n.....Toledo, 1874
Kitchen, Francis A., Toledo Medical Ass'n.....Toledo, 1892
Kline Peter J., Hempstead Academy of Medicine.Portsmouth, 1895
Knapp, Charles C. .....Zanesville, 1899
Knauss, William H. .....Newark, 1900
Knight, Arthur L., Cincinnati Acad. of Med.....Madisonville, 1900
Knowlton, Wm. A., Cleveland Medical Society....Cleveland, 1892
Koehler, Max, Academy of Medicine.....Cincinnati, 1893
Kofron, Jos. V., Cleveland Medical Society.....Cleveland, 1898
Kramer, Simon P., Cincinnati Acad. of Med.....Cincinnati, 1900
Krape, Joseph H. .....Kent, 1901
Krause, Bernard, Cuyahoga Co. Medical Society....Cleveland, 1880
Krauss, L. S., Montgomery Co. Med. Society...Middletown, 1892
Krieger, Gustave L.....Madisonville, 1884
Krouse, Louis J., Academy of Medicine.....Cincinnati, 1892
Kunz, John C., Academy of Medicine.....Cincinnati, 1901

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ndman, Otto, Toledo Medical Ass'n.....Toledo, 1892

Langdon, Frank W., Academy of Medicine.....Cincinnati, 1892
Large, Secord H., Cleveland Medical Society.....Cleveland, 1901
Larimore, Frank C., N. C. O. M. S.....Mt. Vernon, 1871
Larkins, John C., Highland Co. M. S.....Hillsboro, 1901
Lash, Josiah W., Ross Co. Medical Society.....Chillicothe, 1879
Lathrop, Arthur B., N. W. O. M. A.....Swanton, 1887
Lawrence, Florus F., Academy of Medicine.....Columbus, 1888
Lawrence, James C., Academy of Medicine.....Columbus, 1895
Leach, Robert .....Mt. Sterling, 1898
Leach, Sherman .....Columbus, 1888
Leahy, Maurice .....Tiffin, 1891
Lee, James F. .....Mt. Vernon, 1898
Lee, Millard F.....Columbus, 1899
Lehman, Clarence W., Preble Co. Medical Society....Eaton, 1895
Lenhart, Charles M. .....Zanesville, 1894
Leonard, E. L. .....New Antioch, 1897
LEONARD, BENJAMIN B., N. O. M. A.....West Liberty, 1854
Lerch, Adelbert V.....Pleasantville, 1898
Leslie, John M., Ross Co. Medical Society.....Chillicothe, 1878
Lewis, Robert C. M.....Marion, 1898
LEWIS, W. C. Fairfield Co.....Rushville, 1869
Lewis, Harry A., N. W. O. M. A.....Continental, 1899
Lichliter, David C., Montgomery Co. Med. Society...Dayton, 1892
Lightner, Samuel B., Clinton Co. Medical Society.....Sabina, 1888
Lincoln, William R., Cleveland Medical Society....Cleveland, 1896
Linden, W. E., Cleveland Medical Society...South Brooklyn, 1897
Lindenberger, Lauren M., Miami Co.....Troy, 1898
Lindsay, John A., E. O. M. S.....Salineville, 1895
Linhart, Christopher P., Columbus Acad. of Med...Columbus, 1900
Link, Jos. A., Clarke Co. Medical Society.....Springfield, 1899
Longstreth, Wm. E., Perry Co. Medical Society.....Comly, 1900
Longsworth, Milton J. .....St. Mary's, 1897
Lorimer, Hugh F.....Jamestown, 1898
Love, Ephraim W., Brown Co. M. S.....Fayetteville, 1892
Love, Maro J.....Bloomingville, 1900
Love, Wesley, Brown Co. Medical Society.....Higginsport, 1901
LOVING, STARLING, Academy of Medicine.....Columbus, 1858
Lower, Wm. E., Cleveland Medical Society.....Cleveland, 1896
Lowman, John H., Cleveland Medical Society.....Cleveland, 1877
Lowry, Joseph W., Lawrence Co. Med. Society.....Ironton, 1896
Lowry, O. F., Guernsey Co. Medical Society.....Cambridge, 1899
Loyer, Albert E. .....New Washington, 1898
Lucas, Valentine C., Cleveland Medical Society....Cleveland, 1892
Lucas, Arista O.....New Washington, 1899

Lupton, Ella B., Gallia County M. S.....Gallipolis, 1901
Lyle, Benjamin F., Academy of Medicine.....Cincinnati, 1892
LYMAN, CORNELIUS N., N. E. O. M. A....Wadsworth, 1852

McCallum, Duncan D.....Crestline, 1899
McCann, Thomas H.....Scioto, 1901
McCassey, John H., Montgomery Co. Med. Soc.....Dayton, 1901
McClain, Jesse .....Coshocton, 1899
McClellan, James S., Belmont Co. Medical Society...Bellaire, 1894
McCLURE, JAMES, Washington Co. M. S.....Marietta, 1866
McCOLLUM, Ephraim J., N. W. O. M. A.....Tiffin, 1871
McCoy, Clement D., N. W. O. M. A.....Kenton, 1892
McCready, Samuel R., Union Medical Society.....Leetonia, 1898
McCullough, Joseph A.....Steubenville, 1894
McCullough, Adams H., Academy of Medicine.....Mansfield, 1897
McCurdy, John, Mahoning Co. M. S.....Youngstown, 1870
McCurdy, Stewart L.....Pittsburg, Pa. 1892
McDougal, John G., Hildreth District M. A..New Lexington, 1894
McGavern, Frank .....Columbus, 1901
McGavran, Samuel B.....Cadiz, 1887
McGee, John B., Cleveland Medical Society.....Cleveland, 1880
McIntire, Wm., Central Ohio Medical Society..Warrensburg, 1881
McKee, Edward S., Academy of Medicine.....Cincinnati, 1886
McKim, Frank E.....Marietta, 1886
McKinley, J. W. .....Harrisburg, 1900
McKinley, E. Burris, N. W. O. M. A.....Vaughnsville, 1887
McKitrick, Llewellyn..... Dublin, 1900
McMillen, D. H., N. E. O. M. A.....Orrville, 1900
McMurray, Alexander B.....Marion, 1879
McNeill, Russell C.....Belle Center, 1901
McVety, Albert F., Lucas Co., Medical Society.....Toledo, 1895

Mackenzie, John C., Academy of Medicine.....Cincinnati, 1892
Macready, James, Butler Co. Medical Society.....Monroe, 1885
Macready, John Hart, Academy of Medicine.....Cincinnati, 1901
Maerker, A. E. H., N. W. O. M. A.....Napoleon, 1892
Main, Oscar Michael, Toledo Medical Society.....Toledo, 1901
Malony, Louis A.....Cincinnati, 1901
Malsbary, Geo. E., Academy of Medicine.....Cincinnati, 1897
March, Edgar J., Stark Co. Academy.....Canton, 1898
Mardis, A. W., Tri-State Medical Society.....Lebanon, 1901
Markley, Lee, Brown Co. Medical Society.....Georgetown, 1892
Marquart, Oscar M., Greene Co. Medical Society.....Osborn, 1891
Marsh, Frederick O., Academy of Medicine.....Cincinnati, 1892
Marshal, Robert J., E. O. M. S.....East Liverpool, 1897

Marshall, George M., Hempstead Acad of Med....Columbus, 1895
Martin, Jas., N. E. O. M. A.....Fredericksburg, 1892
Martin, Thos. Chas., Cleveland Med. Society.....Cleveland, 1897
Matthias, Albert C., N. W. O. M. A.....McComb, 1892
Matthewson, John D.....Kalida, 1901
Mattoon, Francis N., Madison Co.....Plain City, 1881
May, John B.....New Holland, 1892
Maynard, Oscar T., Cleveland Medical Society.....Elyria, 1892
Means, Chas. S., Academy of Medicine .....Columbus, 1896
Means, Will J., Central Ohio M. S.....Columbus, 1892
Meek, A. W., Darke Co. M. S.....Hollandsburg, 1900
Melick, William A., Muskingum Co. M. S.....Zanesville, 1892
Merriman, David J.....Painesville, 1884
Messley, George B.....Grove City, 1900
Metzler, Abraham S., Holmes Co. Medical Society....Baltic, 1874
Michael, Francis M.....Eaton, 1901
Miller, A. T., Tuscarawas Co. Medical Society....Shanesville, 1890
Miller, Delbert J., Union Co. M. S.....N. Benton, 1892
Miller, James W., Academy of Medicine.....Cincinnati, 1901
Miller, John F., Shelby Co. Medical Society...Port Jefferson, 1892
Miller, Naaman C.....Fostoria, 1898
Miller, T. Clarke, N. E. O. M. A.....Massillon, 1898
Miller, Verlando Z.....Brookville, 1900
Milliken, Benjamin L., Cleveland Medical Society..Cleveland, 1885
Millikin, Dan, Butler Co. Medical Society.....Hamilton, 1879
Mills, Charles H., N. W. O. M. S.....Toledo, 1888
Mills, Charles D.....Marysville, 1898
Mills, Daniel C., Montgomery Co. Med. Soc...New Lebanon, 1901
Milner, Wm. L.....Wigginsville, 1900
Mitchell, Edwin W., Academy of Medicine.....Cincinnati, 1892
Mitchell, Geo., Academy of Medicine.....Mansfield, 1897
Molony, Louis A.....Cincinnati, 1901
Moody, Milo M., Union Co. M. S.....Chatham, 1892
Moody, Price, Washington Co.....Bartlett, 1898
Moore, Clark A.....Cambridge, 1894
Moore, Dickson L., Academy of Medicine.....Columbus, 1895
Moore, Henry M. W., Academy of Medicine.....Columbus, 1894
Moore, Lyman G. .....Kinsman, 1878
Moore, John J., Clarke Co. M. S.....South Charleston, 1900
Moore, William R.....Swan, 1901
Morehouse, G. W.....Sparta, 1890
Morgan, John F., Hempstead Academy of Med.....Jackson, 1895
Morgan, Richard J., N. W. O. M. A.....Van Wert, 1895
Morgenroth, S.....Bellefontaine, 1901

Morris, Joseph, N. W. O. M. A.....Columbus Grove, 1879
Mory, John J.....St. Henry's, 1871
Mosgrove, Samuel M., Champaign Co. M. S.....Urbana, 1884
MOUNTS, J. L., Warren Co. Medical Society.....Morrow, 1860
Mundhenk, Lewis R., Preble Co. Med. Soc...W. Alexandria, 1899
Murbach, Edwin A., N. W. O. M. A.....Archbold, 1901
Murphy, James W.....Eagle Mills, 1901
Murphy, John W., Academy of Medicine.....Cincinnati, 1892
Murphy, Walter E., Academy of Medicine.....Cincinnati, 1901
MURRAY, LANGDON S., N. E. O. M. A.....Medina, 1870
Myers, Elmer G., Stark Co. Academy of Medicine....Canton, 1900
Myers, Isaac A., N. C. O. M. S.....Shelby, 1892
Myers, John E., Clarke Co. Medical Society.....Springfield, 1892
Myers, Noah, Clarke Co. Medical Society.....Springfield, 1892
Myers, Park L., Lucas Co. M. S.....Toledo, 1900

NASH, E. KING, Summit Co.....Montrose, 1876
Nash, William H. H., Academy of Medicine.....Columbus, 1898
Nelson, Lockhart .....Hillsboro, 1900
Niles, L. E.....New York City, 1896
Nincehelser, Oram A., Champaign Co. M. S..Mechanicsburg, 1899
Noble, Nathan T.....St. Mary's, 1892
Noble, Herbert E., N. W. O. M. A.....Toledo, 1892
Norris, Thos. B., Franklin Co.....Alton, 1882
Nungesser, John J., Cleveland Medical Society.....Cleveland, 1895

O'Connell, Richard F., Gallia Co. M. S.....Gallipolis, 1901

Oblitz, N. .....Columbus, 1895
Ogden, Charles B., Ohio Valley M. S.....East Liverpool, 1901
Ohlmacher, Albert P., Cleveland Med. Society....Chicago, Ill. 1895
Oliver, John C., Academy of Medicine.....Cincinnati, 1892
Oster, Louis W., Cleveland Medical Society.....Cleveland, 1892
Overly, John E., C. O. M. S.....Columbus, 1888
Owens, John R.....Wayland, 1901

Palmer, Chauncey D., Academy of Medicine.....Cincinnati, 1871
Parke, Benjamin R., E. O. M. S.....Wellsville, 1900
Parker, Charles G., Gallia Co. Medical Society.....Gallipolis, 1901
Parker, Edward W.....Gallipolis, 1899
Parry, John R., Belmont Co.....Woodsfield, 1898
PATERSON, A. V. .....Mansfield, 1861
PEARCE, ENOCH .....Steubenville, 1859
Pearson, Herbert R., Miami Co. M. S.....West Milton, 1900

Pennell, William W.....Fredericktown, 1884
Perkins, David S., Cleveland Medical Society.....Colorado, 1897
Peskind, Arnold, Cleveland Medical Society.....Cleveland, 1892
Peter, Robert, Tuscarawas Co. Med. Soc.....Chicago, 1891
Petitt, Richard R., Montgomery Co. M. S.....Dayton, 1885
Phillips, William S., N. W. O. M. S.....Belle Center, 1895
Piper, Wm., Belmont Co. Medical Society.....Bellaire, 1892
Platter, Herbert M., Academy of Medicine.....Columbus, 1898
Plummer, Frank E. .....Coalton, 1896
Pomeroy, Frank S., Cleveland Medical Society.....Chardon, 1897
Porter, William D., Academy of Medicine.....Cincinnati, 1892
Potter, Samuel B.....Fredericktown, 1892
Powell, Wm. S. .....Defiance, 1881
Pratt, Lester C.....Bellefontaine, 1895
Price, Henry H., Guernsey Co. Med. Society.....Cambridge, 1899
Probst, C. O., C. O. M. S. .....Columbus, 1892
Prolzman, Elmer S., N. W. O. M. S.....Kenton, 1901
Pugh, Frank H., N. W. O. M. A.....Bryan, 1892
Pumphrey, Rezin J., Belmont Co. Med. Society....Massillon, 1895

Quirk, Howard W., Cleveland Medical Society.....Jersey, 1889
Quinn, Allen T., Clinton Co. Medical Society...Wilmington, 1881

Rambo, Cyrus M., Muskinggum Co. M. S.....Zanesville, 1894
Ramsey, William T., Guernsey Co. Med. Society..Cambridge, 1899
Ranchous, Walter E. N. .....Columbus, 1898
Rank, Willard Curtis.....Newark, 1895
Rankin, Theodore W., Academy of Medicine.....Columbus, 1881
Ransohoff, Joseph, Academy of Medicine.....Cincinnati, 1879
Rardin, Joseph S. .....Portsmouth, 1892
Ravogli, Augustus, Academy of Medicine.....Cincinnati, 1892
Ray, Jacob B., Pike Co. Medical Society.....Omega, 1896
Ray, James B., Hempstead Medical Academy.....Scioto, 1898
Ray, Joseph H., S. O. A. of M.....Coalton, 1895
Ray, Victor, Cincinnati Academy of Medicine.....Cincinnati, 1900
Rea, Edwin H., E. O. M. S.....Irondale, 1897
REAMY, THADDEUS A., Academy of Med....Cincinnati, 1855
Reason, James W.....Hilliards, 1899
Reed, Calvin H., Toledo Medical Ass'n.....Toledo, 1873
Reed, Charles A. L., Academy of Medicine.....Cincinnati, 1881
Reed, Thomas J.....Massillon, 1881
REEVE, JOHN C., Montgomery Co. M. S.....Dayton, 1861
Reeve, John C., Montgomery Co. M. S.....Dayton, 1892
Reilly, Daniel G., Montgomery Co. M. S.....Dayton, 1901

Reinhart, James C., Toledo Medical Ass'n.....Toledo, 1887
Reycraft, Albert J. .....Fostoria, 1898
Reynolds, Robert D.....Green Springs, 1897
Rheinfrank, John H., N. W. O. M. A.....Perrysburg, 1886
Rheinfrank, William H.....Perrysburg, 1895
Rhu, August, Marion Co. Medical Society.....Marion, 1886
Rhu, Herman S., Marion Co. M. S.....Marion, 1900
Richards, Alvah B., Perry Co. Med. Society..New Lexington, 1895
Richardson, Alonzo B., Academy of Med..Washington, D. C. 1891
Ricketts, Edwin, Academy of Medicine.....Cincinnati, 1891
Ricketts, B. Merrill, Academy of Medicine.....Clincinnati, 1884
Ridgeway, N. B., N. C. M. S. .....Galion, 1878
Riggs, John U.....Bryan, 1873
Rinehart, Henry D.....Covington, 1901
Robb, Hunter, Cleveland Medical Society.....Cleveland, 1897
Roberds, Thomas W., Highland Co. Medical Society....Bell, 1892
Robeson, Donovan, Darke Co. M. S.....Greenville, 1900
Rodebaugh, Henry A.....Marysville, 1890
RODGERS, JOHN H., Clarke Co. Med. Soc....Springfield, 1859
Rogers, John H.....Louisville, 1889
Rogers, Henry W., Cleveland Medical Society....Cleveland, 1892
Rogers, William K., Academy of Medicine.....Columbus, 1895
Root, Henry A., Toledo Medical Ass'n.....Toledo, 1892
Rosenwasser, Marcus, Cleveland Medical Society...Cleveland, 1880
Rosengrant, Thos. S.....Barnesville, 1894
Rouse, Wm. L., Greene Co. Medical Society....Paintersville, 1896
Row, Geo. T., Pickaway Co. Medical Society.....Circleville, 1881
Rudy, Albert S., Allen Co. Medical Society.....Lima, 1892
Rush, Andrew W., Darke Co. M. S.....Greenville, 1900
Russell, Edwin S., Tuscarawas Co. M. S.....Alliance, 1880
Russell, Geo. C., Cuyahoga Co. M. S.....Cleveland, 1892
Russell, John E., N. C. O. M. S. .....Mt. Vernon, 1897
Rutter, H. C.....Columbus, 1897
Ryan, Michael, Mercer Co. Medical Society.....Dayton, 1899

Sabin, Thos. M. .....Warren, 1893
Saffin, Wilson S., Cincinnati Academy of Med .....Carthage, 1901
Sager, Benson E., Cleveland Medical Society.....Cleveland, 1897
Sager, Joseph, N. W. O. M. A.....Celina, 1882
Sampson, George W.....Upper Sandusky, 1895
Sanders, Addison F., Academy of Medicine.....Cincinnati, 1899
Sanders, Tennyson .....Leesburg, 1901
Santee, Leon B., Stark Co. M. S.....Marlboro, 1885
Sattler, Robert, Academy of Medicine.....Cincinnati, 1872

Sawyer, John Pascal, Cleveland Medical Society....Cleveland, 1892
Schmidter, William C., Academy of Medicine.....Cincinnati, 1901
Schnetzler, August C., Toledo Medical Ass'n.....Toledo, 1899
Schnetzler, H. Marcus, Toledo Medical Ass'n.....Toledo, 1874
Schoepfle, Henry C., Erie Co. M. S.....Sandusky, 1900
Schooley, Lindley .....Belmont, 1894
Schutzbach, J. C., Tuscarawas Co. M. S. .....Strasburg, 1892
Schwab, Emanuel, Academy of Medicine.....Cincinnati, 1892
Schwab, Louis, Academy of Medicine.....Cincinnati, 1892
Scott, Baldwin B., Knox Co. Medical Society...Mt. Vernon, 1892
Scott, Nathan Stone, Cleveland Medical Society....Cleveland, 1892
Scott, Wm. Alfred, Fulton Co.....Swanton, 1878
Scott, Xenophon C., N. E. O. M. A.....Cleveland, 1874
Sears, O. T., Erie Co. Medical Society.....Toledo, 1892
Sewell, Silas G., Greene Co. Medical Society.....Greenville, 1892
Seys, Henry H., Clarke Co. M. S.....Springfield, 1899
Shaller, John M., Academy of Medicine.....Cincinnati, 1892
Shalliott, Peter, Tuscarawas Co. M. S.....Winesburg, 1891
Sharp, B. M., Shelby Co. Medical Society.....Sidney, 1885
Sharp, Clark E. .....Columbus, 1900
Sharp, H. J. .....London, 1899
Shaw, William E., Academy of Medicine.....Cincinnati, 1892
Sheldon, S. B., Brown Co. Medical Society.....Five Mile, 1882
Sherman, Harris G., Cleveland Medical Society....Cleveland, 1892
Shie, David P., Wayne Co. M. S.....Fredericksburg, 1897
Shriner, Pinckney D.....Columbus, 1895
Silbaugh, John J. .....Lancaster, 1899
Silver, David R., Shelby Co. Medical Society.....Sidney, 1870
SINNET, EDWIN, Licking Co. Medical Society..Granville, 1850
Sipher, John N., Cleveland Medical Society.....Cleveland, 1892
Sittel, Theodore, Academy of Medicine.....Cincinnati, 1892
Skeel, Robert E., Cleveland Medical Society.....Cleveland, 1892
Slagle, Charles D., Montgomery Co. M. S.....Centerville, 1901
Slocum, Chas. E., N. W. O. M. A.....Defiance, 1874
Smead, Herbert E., Lucas Co. M. S.....Toledo, 1901
Smith, B. Decatur, Academy of Medicine.....Cincinnati, 1901
Smith, Chas. N., Toledo Medical Ass'n.....Toledo, 1887
Smith, Chas. W., Cleveland Medical Society.....Cleveland, 1897
Smith, Daniel B., Cleveland Medical Society.....Cleveland, 1892
Smith, David M.....Newark, 1895
Smith, Frederick K., Cuyahoga Co. M. S.....Warren, 1897
Smith, Harvey H.....Sharonville, 1901
Smith, John M., Tuscarawas Co. M. S.....New Philadelphia, 1884
Smith, Wm. G., Portage Co. Medical Society.....Ravenna, 1885

Smith, William W., Hempstead Memorial Acad..Portsmouth, 1900
Snodgrass, Jesse, N. W. O. M. A.....Kenton, 1897
Snodgrass, William C., N. W. O. M. S.....Kenton, 1901
Snyder, Charles .....London, 1895
SNYDER, DANIEL J., Harrison Co. Med. Soc.....Scio, 1850
Snyder, Darlington J. .....Columbus, 1899
Snyder, Walter H., Toledo, Medical Ass'n.....Toledo, 1896
Sonders, Berton A., Guernsey Co. Med. Society....Winterset, 1899
Souder, Robert L., N. W. O. M. A.....Nevada, 1892
Souders, Samuel, Montgomery Co. M. S.....Dean, 1879
Southard, John Q. .....Marysville, 1882
Speer, Henry N.....Cambridge, 1900
Speidel, C. Gustav E., Academy of Medicine.....Cincinnati, 1892
Spencer, Ezra R., N. E. O. M. A.....Doylestown, 1885
Spenzer, John G., Cleveland Medical Society.....Cleveland, 1896
Sproull, Oliver T., Adams Co. Med. Soc.....Bentonville, 1901
Spurney, Albert F., Cleveland Medical Society.....Cleveland, 1897
Stamm, Martin, Sandusky Co.....Fremont, 1891
STANLEY, ELWOOD .....Sandusky, 1870
STANSELL, JOSEPH A.....Forest, 1866
Stanton, Byron, Academy of Medicine.....Cincinnati, 1892
Stark, Sigmar, Academy of Medicine.....Cincinnati, 1892
Starmen, Albert A.....Danville, 1901
Steel, Robert G., Seneca Co. Medical Society.....Melmore, 1897
Steiner, David W., Allen Co. Medical Society.....Lima, 1890
Stephenson, Young, Brown Co. M. S.....Georgetown, 1892
Stevens, Edward S., Warren Co. Medical Society....Lebanon, 1886
Stevenson, George W., Cleveland Medical Society..Cleveland, 1892
Stewart, John O., Green Co. M. S.....Cedarville, 1892
Stewart, Wm. D., Toledo Medical Ass'n.....Toledo, 1887
Stewart, Thos. H. .....Church Hill, 1877
Stewart, Robert W., Academy of Medicine.....Cincinnati, 1892
Stillman, Frank L., Academy of Medicine.....Columbus, 1895
Stinchcomb, William G.....Bellefontaine, 1900
Stinson, Charles H.....Newark, 1894
Stitt, John J. .....Rising Sun, 1899
Stockton, Geo., Academy of Medicine.....Columbus, 1895
STOCKSTILL, J. N., Clarke Co. .....New Carlisle, 1857
Storey, Wm., Erie Co. Medical Society.....Castalia, 1884
Stovering, Frank A., Cleveland Medical Society....Cleveland, 1901
Straight, Howard S., Cleveland Medical Society....Cleveland, 1892
Strain, Albert J., Madison Co. M. S.....London, 1899
Strausz, Philip H., Lucas Co. M. S.....Toledo, 1901
tricker, Louis, Academy of Medicine.....Cincinnati, 1895

Stucky, J. George, Holmes Co.....Walnut Creek, 1897
Suker, George F., Lucas Co. M. S.....Toledo, 1901
SWENEY, ROBERT L.....Marion, 1859
Swisher, Argus B.....Marysville, 1898
Sykora, Joseph, Cleveland Medical Society.....Cleveland, 1892
Sylvester, John E., Jackson Co.....Wellston, 1898
Syman, Lyman L.....Springfield, 1899

Taggart, Horace D., Summit Co. M. S.....Akron, 1892
Talley, Charles F.....Powell, 1895
Tangeman, Charles W., Academy of Medicine.....Cincinnati, 1888
Tate, Magnus A.....Cincinnati, 1901
Tauber, Barnard, Academy of Medicine.....Cincinnati, 1899
Taylor, J. B., N. C. O. M. S.....Broadway, 1899
Taylor, Wm. H.. Academy of Medicine.....Cincinnati, 1874
Taylor, Clovis M. .....Columbus, 1894
Taylor, Fred C., Cleveland Medical Society.....Cleveland, 1897
Taylor, Sterling B., Columbus Academy of Med....Columbus, 1900
Taylor, Walter C.....Kimbolton, 1901
Teachnor, W., Hempstead Academy of Medicine...Columbus, 1899
Telfair, Geo. M., Clinton Co. Medical Society...Bloomington, 1884
Thomas, B. A., Perry Co. Medical Society.....Rushville, 1899
Thompson, Chas. A. .....Raymond, 1899
Thompson, Fred E., Morrow Co. Medical Society..Marengo, 1895
Thompson, John A., Academy of Medicine.....Cincinnati, 1892
Thompson, S. R., Tuscarawas Co. M. S.....Uhrichsville, 1892
Thompson, William E.....St. Clairsville, 1897
Thorn, Samuel S., Toledo Medical Association.....Toledo, 1873
Thrasher, Allen B., Academy of Medicine.....Cincinnati, 1886
Timberman, Andrew, Academy of Medicine.....Columbus, 1898
Titlow, Benetta D., Clarke Co. M. S.....Springfield, 1892
Tobey, Henry A., Toledo Medical Ass'n.....Toledo, 1878
Todd, Joseph H., Wayne Co. Medical Society.....Wooster, 1892
Tower, Bryant M., Ashta., Lake & Geau. Co. M. S., Conneaut, 1892
Towslee, Lillian G., Cleveland Medical Society.....Cleveland, 1897
Tracy, James L., Toledo Medical Ass'n.....Toledo, 1892
Trimble, Charles E., Crawford Co. M. S.....Crestline, 1892
Trimble, Rodney T., Clinton Co. M. S.....New Vienna, 1881
Trout, J. Frances .....Lancaster, 1895
Trush, Jacob, Academy of Medicine.....Cincinnati, 1892
Tuckerman, Louis B., Cleveland Medical Society...Cleveland, 1891
Tydings, Oliver, Piqua Society Clinical Medicine.....Piqua, 1892

Upham, John H. J., Columbus Academy of Med..Columbus, 1900
Upson, George D., Cleveland Medical Society.....Cleveland, 1897

Vail, Derrick T., Academy of Medicine.....Cincinnati, 1892
Van Fossen, Jesse A., Columbus Academy of Med.Columbus, 1901
Van Nette, Wesley, Crawford Co. M. S.....Poplar, 1892
Van Pelt, Charles L., Toledo Medical Association....Toledo, 1887
Vance, Allen H., Clarke Co. Med. Soc.....Springfield, 1899
VANDERVOORT, J. W., Warren Co. M. S...Harveysburg, 1864
VANNATA, E., Muskingum Co. M. S.....Fultonham, 1855
Vigor, Frederick A.....New Dover, 1884
Voltz, Ernest C.....Chili, 1898
Vorhes, Burnett C.....Albany, 1895

Wagenhals, Frank S., Columbus Medical Society..Columbus, 1885
Walker, Alonzo B., Union Medical Society.....Canton, 1882
Walker, A. Rudolph, Cincinnati Academy of Med..Cincinnati, 1900
Walker, Edward W., Cincinnati Academy of Med..Cincinnati, 1900
Wall, James J., N. E. O. M. S.....Mallet Creek, 1897
Wallace, Abram H.....Coshocton, 1898
Ward, Clarence S. .....Warren, 1875
Wardlow, Yeatman .....Columbus, 1897
Warner, Frank, Academy of Medicine.....Columbus, 1884
Warner, Charles J., N. C. O. M. S.....Wooster, 1892
Waters, Geo. M., Academy of Medicine.....Columbus, 1896
Watkins, Charles D.....Etna, 1898
Watson, James L., Jr., Lucas Co. M. S.....Toledo, 1901
Watterson, John D. .....Kalida, 1901
Weamer, Phillip F., N. W. O. M. A.....Coldwater, 1900
WEAVER, JAMES M., Montgomery Co. M. S.....Dayton, 1865
Weaver, Walter B., Academy of Medicine.....Cincinnati, 1900
Webb, Dudley, Academy of Medicine.....Cincinnati, 1901
Weber, Wm. C., Cleveland Medical Society.....Cleveland, 1889
Weed, Theo. A. .....Cleveland, 1880
Weeks, Dana O., Marion Co. M .S.....Marion, 1900
Welch, Absalom J.....Mt. Sterling, 1890
Wendel, Henry C., Academy of Medicine.....Cincinnati, 1901
Wenning, William H., Academy of Medicine.....Cincinnati, 1892
West, Thomas J., N. W. O. M. A.....Tiffin, 1875
West, J. Park, Belmont Co. Medical Society.....Bellaire, 1892
Westbrook, Albert E., Delaware Co. M. S.....Ashley, 1900
Whelan, Ray E., Mahoning Co. M. S.....Youngstown, 1897
Whitacre, Horace J., Academy of Medicine.....Cincinnati, 1901
Whitaker, Henry W., C. O. M. S.....Columbus, 1895
White, David K., Cleve'd and Cuyahoga Co. M. S., Cleveland, 1899
White, Wilford, Cleveland Medical Society.....Ravenna, 1897
Whitmar, J. E.....Charm, 1892
ickerham, James O., Adams Co. M. S.....Seaman, 1901

Wilcox, Starling S., Academy of Medicine.....Columbus, 1895
Williard, George P., N. W. O. M. A.....Tiffin, 1875
Williams, Brady, O., E. O. M. S.....Martin's Ferry, 1891
Williams, John G., Cincinnati Academy of Med..Westwood, 1901
Williams, Francis H., Hempstead Acad. of Med..Portsmouth, 1901
Williams, S. W., Gallia Co. Medical Society.....Gallipolis, 1901
Williams, T. Benton, Cleveland Medical Society....Cleveland, 1886
Williams, William E., Hempstead Academy of Med..Jackson, 1895
Williamson, Albert M., Montgomery Co. M. S.....Dayton, 1892
Williamson, Joseph C., Hempstead Memorial Academy of Medicine .....Sciotoville, 1901
Willson, Charles H., Pike County Medical Society.....Idaho, 1895
Wilson, DeWitt C.....Ironton, 1872
Wilson, Edwin F., Academy of Medicine.....Columbus, 1899
Wilson, Edward J.....Columbus, 1895
Wilson, Milo .....Athens, 1898
Wilson, Samuel S., Greene Co. Medical Society.....Xenia, 1899
Winders, Frank, N. W. O. M. S.....Columbus, 1896
Wirt, William H.....Loudonville, 1899
Wirt, Wm. Edgar, Cleveland Medical Society.....Cleveland, 1891
Withrow, John M., Academy of Medicine.....Cincinnati, 1892
Wittich, Roderick B.....Mt. Sterling, 1899
Wolfe, Albertus C., Academy of Medicine.....Columbus, 1896
Wolfstein, David I., Cincinnati Acad. of Med.....Cincinnati, 1900
Wood, John S.....Cleveland, Collinwood, 1880
Wood, William H., Jefferson Co. M. S.....Smithfield, 1892
WOODS, JOSEPH T., Toledo M. A.....Washington, D. C. 1862
Woods, Elizabeth, Toledo Medical Ass'n.....Toledo, 1892
WOODRUFF, L., C. O. M. S.....Alton, 1867
Woodworth, Will H.....Delaware, 1895
Wren, Wm. G.....Columbus, 1898
Wright, John A., N. W. O. M. A.....Toledo, 1892
Wright, James H.....New Lexington, 1894
Wright, John W. .....Columbus, 1885
Wright, S. St. John, Summit Co. M. S.....Akron, 1880
Wright, Thomas M., Miami Co. Medical Society.....Troy, 1891

Yocum, Lincoln A., Wayne Co. M. S.....Wooster, 1897
Youmans, Thos. G., Columbus Academy of Med...Columbus, 1900
Young, D. Howard, Erie Co. M. S.....Wakeman, 1892

Zenner, Phillip, Academy of Medicine.....Cincinnati, 1882
Zimmerman, Harry A.....Youngstown, 1892
Zinke, E. Gustav, Academy of Medicine.....Cincinnati, 1892
Zopfi, William J., Hancock Co. M. S.....Findlay, 1891

ROLL OF PERMANENT MEMBERS

OHIO STATE MEDICAL SOCIETY

ARRANGED BY COUNTIES AND TOWNS

Note.—This list has previously been arranged by towns only, but the general recognition of the county society as the unit of organization suggested the present arrangement, which shows at a glance the representation of each county in the state organization.

Adams County—
- Bentonville:
  - Sproull, O. T.
- Seaman:
  - Wickerham. James O.
- West Union:
  - Bunn, James W.

Allen County—
- Gomer:
  - Jones, Richard E.
- Lima:
  - Bates, Frederick L.
  - Foltz, Tobias.
  - Goebel, Anna M.
  - Hiner, Solomon B.
  - Rudy, Albert S.
  - Steiner, David W.
- West Cairo:
  - Henderson, George W.

Ashland County—
- Hayesville:
  - Kendig, Elias V.
- Loudonville:
  - Wirt, William H.
- Magnetic Springs:
  - Irwin, John W.

Ashtabula County—
- Ashtabula:
  - Aldrich, Daniel B.
  - Battles, Mary Miller
  - Case, Freeman D.
  - Dorman, Harry W.
- Conneaut:
  - Tower, Bryant M.
- Geneva:
  - Fausett, R. C.
- Kingsville:
  - Fox, Curtis L.

Athens County—
- Amesville:
  - Heston, Joseph Z.
- Athens:
  - Wilson, Milo.
- Coolville:
  - Brown, Wilmont E.
- Glouster:
  - Crawford, Andrew J.

Auglaize County—
- Minster:
  - Dine, Colston L.
- St. Marys:
  - Longsworth, Milton J.
  - Noble, Nathan T.

Belmont County—
- Barnesville:
  - Ely, J. Sykes
  - Rosengrant, Thomas S.
- Barton:
  - Cope, Ellis C.
- Bellaire:
  - Kerns, J. T. Walpole
  - West, J. Park
- Belmont:
  - Schooley, Lindley.
- Bridgeport:
  - Howells, James O.
- Flushing:
  - Hobson, John A.
- Glencoe:
  - Clark, John A.
- Martin's Ferry:
  - Darrah, Joseph Wilson
  - Williams, Brady O.

Powhattan Point:
Boone, Joseph S.
St. Clairsville:
Hewetson, Alexander H.
Thompson, William E.
Woodsville:
Parry, John R.

Brown County—
Arnheim:
Kautz, James W.
Fayetteville:
Love, Ephraim W.
Five Mile:
Sheldon, S. B.
Georgetown:
Hannah, Ralph B.
Markley, Lee.
Stephenson, Young.
Higginsport:
Love, Wesley.
Ripley:
Francis, Albert W.

Butler County—
Hamilton:
French, Edward H.
Millikin, Dan.
Middletown:
Corson, Orrillus M.
Dickey, Thomas A.
Krauss, L. S.
Monroe:
Macready, James.
Oxford:
Cook, George Fred.

Champaign County—
Mechanicsburg:
Clark, John H.
Nincehelser, Oram.
North Lewisburg:
Emmons, Davis R.
Rosewood:
Driscoll, Park B.
Urbana:
Henderson, Robert.
Mosgrove, James M.

Clark County—
New Carlisle:
Davis, Benjamin.
Stockstill, J. N.
South Charleston:
Moore, John J.
Springfield:
Bell, Read R.
Bliss, Chester B.
Buckingham, John M.
Dugan, John R.
Gotwald, D. King
Harris, Ezra C.
Hulick, John W.
Hutchings, Stanley R.
Kay, Isaac.
Kay, Clarence H.
Link, Joseph A.
Myers, Noah.
Myers, John E.
Rodgers, John H.
Seys, Henry H.
Syman, Louis L.
Titlow, Benetta D.
Vance, Allen H.
Wilmington:
Quinn, Allen T.

Clermont County—
Marathon:
Formorin, John L.
Owensville:
Combs, John S.
Wigginsville:
Milner, William L.

Clinton County—
Bloomington:
Telfair, George M.
Lee's Creek:
Lambright, Siemon.
New Antioch:
Leonard, E. L.
New Vienna:
Conrad, George R.
Trimble, Rodney T.
Sabina:
Lightner, S. B.

Columbiana County—
East Liverpool:
Calhoun, William M.
Ikirt, George P.
Marshall, Robert J.
Ogden, Charles B.
Leetonia:
McCready, Samuel R.
New Alexandria:
Bozman, Harden E.
Salineville:
Blazer, Harold E.
Lindsay, John A.
Wellsville:
Parke, Benjamin R.

Coshocton County—
Chili:
Voltz, Ernest C.
Coshocton:
Carr, Edmund C.
McClain, Jesse.
Wallace, Abram H.

Crawford County—
Bucyrus:
Bland, Jerome.
Duncan, Arthur M.
Fitzsimmons, James F.
Kemp, Lucia.
Crestline:
Brimble, Charles E.
McCallum, Duncan.
Galion:
Ridgeway, N. B.
New Washington:
Loyer, Albert E.
Lucas, Arista O.
Popular:
Van Nette, Wesley.
Tiro:
Guiss, William H.

Cuyahoga County—
Cleveland:
Albl, Michael A.
Alderdyce, William W.
Allen, Dudley P.
Baker, Albert Rufus
Belt, John H.
Briggs, Charles E.
Brockett, Andrew J.
Brokaw, William F.
Brown, Ernest E.
Bruner, William Evans
Bunts, Frank E.
Calhoun, S. Frederick
Campbell, Oscar B.
Chadwick, Leroy S.
Clapp, Harold T.
Clark, Frank S.
Coates, Benjamin O.
Cook, Joseph E.
Corlett, William Thomas
Crile, George W.
Cushing, Edward F.
Cushing, Henry K.
Dutton, Charles F.
Ehret, Grattan A.
Erwin, James J.
Farnsworth, George B.
Feil, Gustav R.
Foshay, P. Maxwell
Fraser, John M.
Goetz, F. Eugene
Hamann, Carl A.
Hanson, David S.
Havlicek, Frank J.
Hawley, Edwin P.
Herrick, H. Burt
Hobson, Joseph F.
Holliday, Benjamin W.
Holliday, William Wallace
Hoover, Charles F.
House, August F.
Howard, Adams B.
Howard, William T.
Humiston, William H.
Ingersoll, John M.
James, William S.
Jenks, William O.
Jones, John D.
Kaestlen, Samuel E.
Knowlton, William A.
Kofron, Joseph V.
Krause, Bernhard.
Large, Secord H.
Lincoln, William R.
Lower, William E.
Lowman, John H.
Lucas, Valentine C.
McGee, John B.
Martin, Thomas Charles
Milliken, Benjamin L.
Nungesser, John J.
Oster, Louis W.

Peskind, Arnold.
Robb, Hunter.
Rogers, Henry W.
Rosenwasser, Marcus.
Russell, George C.
Sager, Benson E.
Sawyer, John Pascal.
Scott, N. Stone
Scott, Xenophon C.
Sherman, Harris G.
Skeel, Robert E.
Smith, Charles W.
Smith, Daniel B.
Spenzer, John G.
Spurney, Albert F.
Stevenson, George W.
Stovering, Frank A.
Straight, Howard S.
Sykora, Joseph.
Taylor, Fred C.
Towslee, Lillian G.
Tuckerman, Louis B.
Upson, George D.
Weber, William C.
Weed, Theodore A.
White, David K.
Williams, T. Benton
Wirt, William Edgar
Wood, John S.

S. Brooklyn:
Linden, W. E.

Darke County—

Arcanum:
Hawes, Sylvester, A.
Kiester, William H.

Beamsville:
Husted, Eugene G.

Greenville:
Anderson, Lewis C.
Guntrum, William E.
Robeson, Donovan.
Sewell, Silas G.

Hollandsburg:
Meek, A. W.

New Madison:
Hecker, Edwin A.

Versailles:
Gutermuth, William C.

Webster:
Ballinger, John B.

Defiance County—

Defiance:
Powell, William S.
Slocum, Chas E.

Delaware County—

Delaware:
Chidester, Cyrus W.
Fowler, Silas W.
Hughes, Dorrance E.
Westbrook, Albert E.
Woodsworth, Will H.

Ostrander:
Cowles, George E.

Warrensburg:
McIntire, William.

Erie County—

Bloomingville:
Love, Maro J.

Castalia:
Storey, William.

Huron:
Esch, Joseph P.

Sandusky:
Graefe, Charles.
Graefe, William.
Haynes, John T.
Heiter, Carl.
Hughes, F. M.
Schoepfle, Henry C.
Stanley, Elwood.

Fairfield County—

Lancaster:
Beery, George O.
Boerstler, George W.
Goss, Clarence W.
Goss, John H.
Silbaugh, John J.
Trout, J. Frances.

Lithopolis:
Courtwright, George S.

Pleasantville:
Lerch, Adelbert V.

Rushville:
Lewis, W. C.

Thurston:
Heston, E. N.

Fayette County—
Bloomingburg:
Holdren, George W.
Washington C. H.:
Blakeley, George W.
Hughey, James W.
Ireland, John E.
Ireland, Stephen A.

Franklin County—
Alton:
Norris, Thomas B.
Woodruff, L.
Columbus:
Baldwin, James F.
Barnhill, James U.
Bethauser, Charles M.
Blackburn, Marinda E.
Blake, Francis W.
Bleile, Allen M.
Brown, John Edwin
Carpenter, Eugene G.
Clark, Charles F.
Clouse, George M.
Coleman, Nathaniel R.
Cooper, Albert.
Cooperrider, Charles A.
Courtwright, Theodore E.
Custer, Harry J.
Deuschle, William D.
Dick, William L.
Dixon, Myrwood T.
Dunham, John M.
Edwards, Isaac C.
Emerick, Edson J.
Evans, Arthur E.
Fraker, Harvey C.
Fullerton, Erskine B.
Gilliam, D. Tod
Gilliam, Earl M.
Gordon, John L.
Guerin, Zophar.
Hamilton, Charles S.
Hamilton, William D.
Harper, Edward A.
Heckler, Frank A.
Hendrixson, Hugh.
Hendrixson, Mrs. Ola S.
Hendrixson, Oliver P.
Homes, Will W.
Hoover, Thomas C.
Howell, Conrad A.
Ingersoll, Ebenezer J.
Johnson, Alice M.
Jones, Harry S.
Jones, Thomas W.
Kahn, Louis.
Kinsman, David N.
Lawrence, Florus F.
Lawrence, James C.
Leach, Sherman.
Lee, Millard F.
Linhart, Christopher P.
Loving, Starling.
McGavran, Frank.
Marshall, George M.
Means, Charles S.
Means, Will J.
Moore, Dickson L.
Moore, Henry, M. W.
Nash, William H. H.
Oblitz, Nelson.
Overly, John E.
Platter, Herbert M.
Probst, Charles O.
Ranchous, Walter E. M.
Rankin, Theodore W.
Rogers, William K.
Rutter, H. C.
Sharp, Clark E.
Shriner, Pinckney D.
Snyder, Darlington J.
Stillman, Frank S.
Stockton, George.
Taylor, Clovis.
Taylor, Sterling B.
Teachnor, Wells.
Timberman, Andrew.
Upham, John H. J.
Van Fossen, J. A.
Wagenhals, Frank S.
Wardlow, Yeatman.
Warner, Frank.
Waters, George M.
Whitaker, Henry W.
Wilcox, S. S.
Wilson, Edward J.
Wilson, Edwin F.
Winders, Frank.
Wolfe, Albertus C.
Wren, William G.
Wright, John W.
Youmans, Thomas G.
Dublin:
McKitroch, Llewellyn.
Grove City:
Geissinger, Henry W.
Messley, George B.

Harrisburg:
Helmick, George W.
McKinley, J. Bates
Hilliard:
Reason, James W.
Milo:
Albright, Charles W.
Shadeville:
Blake, William H.
Worthington:
Johnson, Fred L.

Fulton County—
Archbold:
Murbach, Edwin A.

Gallia County—
Gallipolis:
Alcorn, Eli G.
Alcorn, John B.
Allen, Harvey Sherwood
Chadbourne, Theodore L.
Howell, W. E.
Lupton, Ella G.
O'Connell, Richard F.
Parker, Charles G.
Parker, E. W.
Williams, S. W.
Patriot:
Eakins, Jehu.

Geauga County—
Chardon:
Pomeroy, Frank S.

Greene County—
Bryan:
Riggs, John U.
Cedarville:
Stewart, John O.
Clifton:
Harris, James H.
Jamestown:
Jones, L. M.
Lorimer, Hugh F.
Osborn:
Marquart, Oscar M.
Paintersville:
Rouse, William L.
Xenia:
Wilson, Samuel S.
Yellow Springs:
Humphrey, William H.

Guernsey County—
Cambridge:
Bradford, William U.
Lowry, O. F.
Moore, Clark A.
Price, Henry H.
Ramsey, William T.
Speer, Henry N.
Kimbolton:
Taylor, Walter C.
Pleasant City:
Bown, Herbert H.
Quaker City:
Kahler, J. Frank
Winterset:
Sonders, Berton A.

Hamilton County—
Carthage:
Saffir, Wilson S.
Cincinnati:
Abbott, Charles N.
Allen, George M.
Allen, Samuel E.
Ayres, Wylie M.
Bailey, Gilbert L.
Beebe, Brooks F.
Bettman, Henry Wald
Bonifield, Charles Lybrand
Brady, Mifflin B.
Brent, Columbus P.
Brown, Henry M.
Bruehl, Gustave
Brunning, F.
Buckner, James H.
Buttemiller, John C.
Caldwell, C. E.
Caldwell, James S.
Campbell, Elizabeth.
Carothers, Robert
Carpenter, Julia W.
Carrick, Anthony L.
Carroll, Francis.
Carson, Archibald I.
Cleveland, John L.
Cone, Stephen E.
Conner, Phineas S.
Culbertson, J. C.
Dandridge, Nathaniel P.
Devers, A. B.

Eichberg, Joseph.
Everts, Orpheus.
Fels, George W.
Fischer, Phillip.
Fitzpatrick, Thomas V.
Foertmeyer, Charles H.
Freiberg, Albert H.
French, James M.
Friedlander, Alfred.
Gaither, Alfred.
Garlick, H. Stowe
Goode, Burwell P.
Gores, Ferdinand C.
Green, Myron.
Grier, Otto P.
Grim, Adolph.
Hall, Joseph A.
Hall, Rufus B.
Heidingsfeld, M. L.
Hendley, Frank W.
Hillkowitz, William.
Holmes, Christian R.
Holt, Oliver P.
Hoppe, Herman H.
Hottendorf, Louis P.
Iglauer, Samuel.
Johnston, J. Ambrose
Johnstone, Arthur W.
Joseph, Leopold.
Judkins, William.
Junkerman, George S.
Keck, Peter A.
Kiely, William E.
King, John R.
Knight, Arthur L.
Koehler, Max.
Kramer, Simon P.
Krouse, Louis J.
Kunz, John C.
Langdon, Frank W.
Lyle, Benjamin F.
MacCready, John H.
MacKenzie, John C.
McKee, Edward S.
Maloney, Louis A.
Malsbary, George E.
Marsh, Frederick O.
Miller, James W.
Mitchell, Edwin W.
Murphy, John W.
Murphy, Walter E.
Oliver, John Chadwick
Palmer, Chauncy D.
Porter, William D.
Ransohoff, Joseph.
Ravogli, Augustus.
Ray, Victor.
Reamy, Thaddeus A.
Reed, Charles A. L.
Ricketts, B. Merrill
Ricketts, Edwin.
Sanders, Addison F.
Sattler, Robert.
Schneider, Wm. S.
Schwab, Emanuel.
Schwab, Louis.
Shaw, William E.
Sittel, Theodore.
Smith, B. Decatur
Speidel, C. Gustav
Stanton, Byron.
Stark, Sigmar.
Stewart, Robert W.
Strickler, Louis.
Tangeman, Charles W.
Tate, Magnus A.
Tauber, Bernard.
Taylor, William H.
Thrasher, Allen B.
Trush, Jacob.
Vail, Derrick T.
Walker, A. Rudolph
Walker, Edward W.
Weaver, Walter B.
Webb, Dudley.
Wendel, Henry C.
Wenning, William H.
Whitacre, Horace J.
Withrow, John M.
Wolfstein, David I.
Zenner, Phillip.
Zinke, E. Gustav

Glendale:
Heady, James F.

Madisonville:
Kreiger, Gustave L.

Reading:
Bragg, William N.

Sharonville:
Smith, Harvey H.

Westwood:
Williams, John G.

Hancock County—
Findlay:
Baker, Joseph P.
Hurd, Anson.
Kimmel, Jacob A.
Zopfi, William J.

McComb:
Darbyshire, Morris A.
Hersh, Edward G.

Hardin County—
Forest:
Stansell, Joseph A.
Kenton:
Bain, Frank D.
Heistand, Ezra B.
Heistand, Howard E.
McCoy, Clement C.
Prolzman, E. S.
Snodgrass, Jesse.
Snodgrass, William C.
North Washington:
Clevenger, Richard E.

Harrison County—
Cadiz:
McGavran, Samuel B.
Scio:
Snyder, Daniel J.

Henry County—
Liberty Center:
Haag, Daniel E.
Napoleon:
Harrison, Eugene B.
Maerker, A. E. H.

Highland County—
Bell:
Roberds, Thomas W.
Hillsboro:
Glenn, William W.
Larkins, John C.
Nelson, Lockhart.
Leesburg:
Sanders, Tennyson.
Princetown:
Chaney, Sylvester F.
Russell:
Granger, Francis M.
Sinking Spring:
House, Lindley F.
Wilmington:
Green, Lindley M.

Hocking County—
Logan:
Allen, Charles O.
Swan:
Moore, Wm. R.

Holmes County—
Benton:
Carson, Frank D.
Charm:
Whitmar, J. E.
Millersburg:
Crump, Alexander A.
Walnut Creek:
Stucky, J. George

Huron County—
Wakeman:
Young, D. Howard

Jackson County—
Coalton:
Plummer, Frank E.
Ray, Joseph H.
Jackson:
Gahm, John L.
Kinnison, U. L.
Morgan, John F.
Williams, William E.
Oak Hill:
Hughes, E. E.
Wellston:
Sylvester, John E.

Jefferson County—
Irondale:
Rea, Edwin H.
Smithfield:
Wood, William H.
Steubenville:
Floyd, James C. M.
McCullough, Joseph A.
Pearce, Enoch.

Knox County—
Danville:
Starmen, Albert A.
Fredericktown:
Pennell, William W.
Potter, Samuel B.
Levering:
Eastman, W. H.
Mt. Vernon:
Armentrout, Lyman W.
Blair, Harry W.

Colville, Robert W.
Larimore, Frank C.
Lee, James F.
Russell, John E.
Scott, Baldwin B.

Lake County—
Painesville:
House, Charles F.
Merriman, David J.

Lawrence County—
Ironton:
Dunn, Oscar B.
Keller, Lester.
Lowry, Joseph W.
Wilson, DeW. C.

Licking County—
Etna:
Watkins, Charles D.
Granville:
Follett, Alfred K.
King, Watson L.
Sinnet, Edwin.
Jersey:
Quirk, Howard W.
Newark:
Barnes, Albert S.
Hatch, Charles A.
Knauss, William H.
Smith, David M.
Stinson, Charles H.

Logan County—
Belle Center:
McNeill, Russell C.
Phillips, William S.
Bellefontaine:
Fuller, S. W.
Hamer, William W.
Morgenroth, S.
Pratt, L. C.
Stinchcomb, William G.
West Liberty:
Leonard, Benjamin S.

Lorain County—
Avon:
Brown, E. O. S.
Elyria:
Maynard, Oscar T.
North Amherst:
Davidson, John F.

Lucas County—
Toledo:
Beckwith, Seth W.
Bessey, J. Mortimer.
Betts, Charles.
Bodman, Lewis H.
Bond, John W.
Brand, Walter W.
Chapman, George L.
Chapman, William C.
Cobb, Fred A.
Coldham, William W.
Collamore, George A.
DeVilbiss, Allen.
Duncan, James A.
Faber, Charles A.
Fisher, Charles E.
Gillette, William J.
Grube, Willis W.
Hall, Harry L.
Hasencamp, Oscar.
Hathaway, Harrison.
Hollister, George A.
Hubbard, Thomas.
Jacobsen, Julius H.
Jerome, Mark.
Jones, William A.
Keller, Thomas F.
Kirkley, Cyrus A.
Kitchen, Francis A.
Landman, Otto.
McVety, Albert F.
Main, Oscar Michael
Mills, Charles H.
Myers, Park L.
Noble, Herbert E.
Reed, Calvin R.
Reinhart, James C.
Root, Henry A.
Schnetzler, August C.
Schnetzler, H. Marcus
Sears, O. T.
Smead, Herbert L.
Smith, Charles N.
Snyder, Walter H.
Stewart, Wm. D.
Strausz, Phillip H.
Suker, George F.
Thorn, Samuel S.
Tobey, Henry A.
Tracy, James L.
Van Pelt, Charles L.

Watson, James L., Jr.
Woods, Elizabeth.
Woods, Joseph F.
Wright, John A.

Madison County—
London:
Sharp, H. J.
Snyder, Charles.
Strain, Albert J.
Mount Sterling:
Leach, Robert.
Welch, Absalom J.
Wittich, Roderick B.
Plain City:
Jenkins, Morgan J.
Mattoon, Francis N.

Mahoning County—
Greenford:
Hulin, O. W.
North Benton:
Miller, Delbert J.
Youngstown:
Buechner, William L.
Clark, Myron S.
Clarke, Ida.
McCurdy, John.
Whelan, Ray E.
Zimmerman, Harry A.

Marion County—
Marion:
Chisholm, Horatio.
Crane, A. Melville
Denman, William C.
Hamilton, Lewis D.
Lewis, Robert C. M.
McMurray, Alexander B.
Rhu, August.
Rhu, Herman S.
Sweney, Robert L.
Weeks, Dana.
Martel:
King, John L.

Medina County—
Chatham:
Moody, Milo M.
Mallet Creek:
Wall, James J.
Medina:
Murray, Langdon S.
Wadsworth:
Lyman, Cornelius N.

Meigs County—
Pomeroy:
Hoff, Joseph W.

Mercer County—
Celina:
Sager, Joseph N.
Coldwater:
Weamer, Phillip F.
Mendon:
Clay, William P.
St. Henry's:
Mory, John Jacob

Miami County—
Covington:
Rhinehart, Henry D.
Laura:
Hoover, L. S.
Piqua:
Burnham, R. D.
Cromer, Peyton E.
Tydings, Oliver.
Tippecanoe City:
Hartman, Samuel D.
Troy:
Coleman, Warren.
Green, Joseph H.
Lindenberger, Lauren M.
Wright, Thomas M.
West Milton:
Jennings, Gainor.
Pearson, Herbert R.

Montgomery County—
Brookville:
Miller, Verlando.
Centerville:
Slager, Charles D.
Clayton:
Hous, George W.
Dayton:
Barker, Frederick D.
Beck, John S.
Bohlender, E. E.

Bonnar, Calvin A.
Bonnar, Horace.
Burns, William A.
Chrisman, Claude A.
Conklin, William J.
Davisson, J. Alex.
Dolina, John F.
Evans, George B.
Goodhue, George.
Gray, Francis C.
Greene, Duff W.
Hatsher, Harry H.
Humphreys, Charles H.
Jenner, Henry G.
Jennings, Ellis.
Jewett, Henry Smith
Lichliter, David C.
McCassey, J. H.
Petitt, Richard R.
Reeve, John C.
Reeve, John C., Jr.
Reilly, Daniel G.
Ryan, Michael.
Weaver, James M.
Williamson, Albert M.

Dean:
Sonders, Samuel.

Germantown:
Brown, J. Alfred

Miamisburg:
Judy, Charles S.

Sulphur Grove:
Good, Harman.

Morrow County—

Cardington:
Green, Henry S.

Marengo:
Thompson, Fred E.

Mount Gilead:
Bennet, Walter C.
Griffis, Frank C.
James, Albertus D.

Muskingum County—

Fultonham:
Vannata, E.

Norwich:
Geyer, Joseph L.

Powell:
Talley, Charles F.

Sonora:
Higgins, Charles H.

Zanesville:
Brush, Edmund C.
Culbertson, Louis Rogers
Dorsey, Joseph F.
Fassig, John M.
Holston, John G.
Knapp, Charles C.
Lenhart, Charles M.
Melick, William A.

Noble County—

Fulda:
Albers, John G.

Ottawa County—

Port Clinton:
De La Barre, Paul.

Paulding County—

Payne:
Brattain, G. E.

Perry County—

Comely:
Longstreth, William E.

Corning:
Callinan, D. F.
Holcomb, Calvin B.

Hemlock:
Barnes, B. Frank

Junction City:
Gordon, Patrick A.

New Lexington:
McDougal, John G.
Richards, Robert R.
Wright, James H.

Rushville:
Thomas, B. A.

Somerset:
Hayes, John D.

Thornville:
Clemson, George W.

Pickaway County—

Circleville:
Brown, Richard A.
Colville, George H.
Courtright, Dudley V.
Heffner, George W.
Holman, Austin W.
Row, George T.

New Holland:
May, John B.
Palestine:
Baker, Charles.

Pike County—
Cynthiana:
Eyleer, Oliver R.
Idaho:
Willson, Charles H.
Omega:
Ray, Jacob B.
Waverly:
Andre, Orrin C.
Caldwell, John L.

Portage County—
Kent:
Krape, Joseph H.
Ravenna:
Smith, William G.
White, Wilford.
Wayland:
Owens, John R.

Preble County—
Eaton:
Lehman, Clarence W.
Michael, F. M.
New Hope:
Bivans, William Allen
Rising Sun:
Stitt, John J.
West Alexandria:
Mundhenk, Lewis R.

Putnam County—
Columbus Grove:
Morris, Joseph N.
Continental:
Ayres, Merritt M.
Lewis, Harry A.
Dupont:
Bird, Edward H.
Fort Jennings:
George, John F.
Kalida:
Matterson, John D.
Ottawa:
Beardsley, Charles E.
Ottoville:
Binder, Albert.
Vaughansville:
McKinley, E. Burris

Richland County—
Mansfield:
Finley, Mary J.
McCullough, Adams H.
Mitchell, George.
Paterson, A. V.
Shelby:
Myers, Isaac A.

Ross County—
Chillicothe:
Cole, Alfred P.
Hall, Willard A.
Lash, Josiah W.
Leslie, John M.
Kingston Center:
Foster, G. F.
South Salem:
Cox, John M.

Sandusky County—
Clyde:
Baker, Edwin W.
Fremont:
Stamm, Martin.
Gibsonburg:
Erwin, Norman B.

Scioto County—
Portsmouth:
Allard, Lorenzo.
Foster, E. Marion
Halderman, Stephen S.
Kline, Peter J.
Rardin, Joseph S.
Smith, William W.
Williams, Francis H.
Scioto:
McCain, Thomas H.
Ray, James B.
Sciotoville:
Williamson, Joseph C.

Seneca County—
Fostoria:
Bell, David B.
Keycraft, Albert J.
Miller, Naaman C.

Green Springs:
Reynolds, Robert D.
Melmore:
Steel, Robert G.
Tiffin:
Gibbon, Harmon B.
Hershiser, Henry K.
Leahy, Maurice.
McCollum, Ephraim J.
West, Thomas J.
Williard, George P.

Shelby County—
Port Jefferson:
Miller, John F.
Sidney:
Hussey, Millard F.
Sharp, B. M.
Silver, David R.

Stark County—
Alliance:
Hoover, Collins M.
Russell, Edwin S.
Canton:
Fraunfelter, James.
Hudson, J. Franklin
March, Edgar J.
Myers, Elmer G.
Walker, Alonzo B.
Lake:
Bauer, Milton M.
Louisville:
Baker, William O.
Rogers, John H.
Marlboro:
Santee, Leon B.
Massillon:
Hardy, Irene.
Miller, T. Clarke
Pumphrey, Rezin J.
Reed, Thomas J.

Summit County—
Akron:
Boyd, James P.
Jacobs, Harold H.
Jacobs, William C.
Taggart, Horace D.
Wright, S. St. John.
Copley:
Chapman, Byron.
Cuyahoga Falls:
Hough, Wayland S.
Hudson:
Breck, Theodore B.
Montrose:
Nash, E. King

Trumbull County—
Church Hill:
Stewart, Thomas H.
Kinsman:
Chamberlin, Charles S.
Moore, Lyman G.
Warren:
Sabin, Thomas M.
Smith, Frederick K.
Ward, Clarence S.

Tuscarawas County—
Albany:
Vorhes, Burnett C.
Baltic:
Barton, Robert S.
Canal Dover:
Brannan, Thomas H.
Newcomerstown:
Beers, A. M.
New Dover:
Vigor, Frederick A.
New Philadelphia:
Fox, Joseph F.
Hendershot, Byron C.
Smith, John M.
Shanesville:
Miller, A. T.
Strasburg:
Schutzbach, J. C.
Uhrichsville:
Groves, John E.
Thompson, S. R.
Winesburg:
Shalliott, Peter.

Union County—
Broadway:
Taylor, J. B.
Hilliards:
Davidson, N. P.

Marysville:
Henderson, David W.
Henderson, Grailey.
Henderson, Lutrelle T.
Mills, Charles D.
Rodebaugh, Henry A.
Southard, John Q.
Swisher, Argus B.
Milford:
Belt, Richard C.
Raymond:
Thompson, Charles A.

Van Wert County—
Convoy:
Hall, Emerson V.
Van Wert:
Hines, J. Arthur
Morgan, Richard J.

Vinton County—
Eagle Mills:
Murphy, James W.
McArthur:
Cherry, Wilbur T.
Dunlap, Charles O.

Warren County—
Carlisle:
Flemming, James C.
Franklin:
Death, Hugh J.
Evans, Otto.
Hamilton, Norval A.
Harveysburg:
Vandervoort, J. W.
Lebanon:
Blair, Benjamin H.
Fisher, Herschel.
Hough, Charles A.
Mardis, A. W.
Stevens, Edward S.
Waynesville:
Henderson, Carl W.

Washington County—
Marietta:
Cotton, J. D.
Hart, Benjamin F.
Hart, Charles S.
Hart, Romeyn B., Sr.
Hart, Samuel.
McClure, James.
McKim, Frank E.
Newport:
Gale, George T.
Waterford:
Hayward, Edwin T.
Watertown:
Bohl, John Sr.

Wayne County—
Apple Creek:
Jamison, J. Ross
Dalton:
Haney, Josiah C.
Doylestown:
Spencer, Ezra R.
Fredericksburg:
Martin, James.
Shie, David P.
Orrville:
Blankenhorn, Henry.
Greenamyer, Peter S.
McMillen, D. H.
Shreve:
Bertolette, Henry B.
Wooster:
Hunt, Abram Huffman
Todd, Joseph H.
Warner, Charles J.
Yocum, Lincoln A.

Williams County—
Bryan:
Pugh, Frank H.

Wood County—
Bradner:
Black, Albert P.
Haskins:
Holst, E. Bertram
North Baltimore:
Archer, John R.
Weston:
Hill, William.

Wyandot County—
Carey:
Brayton, Asa.
Nevada:
Souder, Robert L.
Upper Sandusky:
Sampson, George W.

HONORARY MEMBERS

Bartholow, Roberts, M. D.....Philadelphia, Pa., 1879
Beeman, P., M. D.....Sidney, 1872
Blackburn, J. C., M. D.....Covington, Ky., 1857
Daland, Judson, M. D.....Philadelphia, Pa., 1895
Harding, M. H., M. D.....Lawrenceburg, Ind., 1854
Haughton, R. E., M. D.....Richmond, Ind., 1863
Hibbard, Jas. F., M. D.....Richmond, Ind., 1871
Hill, E. L., M. D.....Oxford, 1856
Jenks, E. W., M. D.....Detroit, Mich., 1875
Kerr, John, M. D.....Canton, China, 1875
Kitchen, J. M., M. D.....Indianapolis, Ind., 1866
Lyons, W. B., M. D.....Huntington, Ind., 1866
Maclean, Donald, M. D.....Detroit, Mich., 1894
Marcy, H. O., M. D.....Boston, Mass., 1897
Noyes, J. F., M. D.....Detroit, Mich., 1875
Pilcher, Capt. J. E.....U. S. Army, 1896
Robb, Hunter, M. D. (Permanent Member, 1897)..Cleveland, 1894
Safford, E. D., M. D.....Parkersburg, W. Va., 1870
Senn, N., M. D.....Chicago, 1890
Shoemaker, John V., M. D.....Philadelphia, Pa., 1899
Stevenson, J. M., M. D.....Pittsburg, Pa., 1866
Sutton, R. S., M. D.....Pittsburg, Pa., 1884
Vaughan, Victor C., M. D.....Ann Arbor, Mich., 1889

DELEGATES TO THE AMERICAN MEDICAL ASSOCIATION, 1901.

N. R. Coleman.....Columbus.
F. F. Lawrence.....Columbus.
J. E. Cook.....Cleveland.
P. Maxwell Foshay.....Cleveland.
W. W. Pennell.....Fredericktown.
L. B. Tuckerman.....Cleveland.
Charles A. L. Reed.....Cincinnati.
Thomas Charles Martin.....Cleveland.
William Thomas Corlett.....Cleveland.
Frank D. Bain.....Kenton.
Hunter Robb.....Cleveland.
Harris G. Sherman.....Cleveland.
William H. Humiston.....Cleveland.
ank Warner.....Columbus.

NONRESIDENT PERMANENT MEMBERS

Barnes, Noble P., 611 Maryland Ave.....Washington D. C., 1894
Brashear, B. B., Cuyahoga Co.....Atlantic City, N. J., 1896
Getzloff, B.....Grand Haven, Mich.
Hill, Frank E., Clermont Co. M. S.....Muncie, Ind. 1892
Jackson, T. W., N. E. O. M. A.....Philadelphia, Pa., 1895
Jones, Geo. E.....Connersville, Ind., 1892
Kammann, Albert A., Cincinnati Acad. of Med...Jersey City, N. J.
Kurtz, C. E.....4460 Berkely Avenue, Chicago, Ill.
McCurdy, S. L.....Pittsburg, Pa., 1882
Nunnemacker, H. B.....44th and Market Streets, Philadelphia, Pa.
Reed, R. Harvey, N. C. O. M. A....Rock Springs, Wyoming, 1884
Spence, J. A., Wellsville Med. Soc.....Pittsburg, Pa., 1888
White, G. M.....Fort Myers, Fla., 1888
Woodbridge, John E., Mahoning Co. M. S.....Chicago, Ill., 1886

PERMANENT MEMBERS

ELECTED 1901 AT THE CINCINNATI MEETING

Edwin A. Murbach.....Archbold.
S. Morgenroth.....Bellefontaine.
Russell C. McNeill.....Bell Center.
O. T. Sproull.....Bentonville.
Oliver R. Eyleer.....Cynthiana.
A. S. Barnes.....Newark.
Wilson S. Saffin.....Carthage.
Henry D. Rinehart.....Covington.
Charles D. Slager.....Centerville.
Frank A. Stovering.....Cleveland.
Secord H. Large..... "
Charles E. Briggs..... "
Ernest E. Brown..... "
Frank J. Havlicek..... "
Frank McGavran.....Columbus.
J. A. Van Fossen..... "
Conrad A. Howell..... "
William C. Schnider..... "
M. L. Heidingsfeld.....Cincinnati.
A. B. Devers..... "
C. E. Caldwell..... "

John H. Macready.....Cincinnati.
Wylie M. Ayres..... "
Henry C. Wendel..... "
Otto P. Greier..... "
Walter E. Murphy..... "
Louis A. Malony..... "
Horace J. Whitacre..... "
James W. Miller..... "
H. Stowe Garlick..... "
Dudley Webb..... "
Walter B. Weaver..... "
Robert Carothers..... "
John C. Kunz..... "
Alfred Friedlander..... "
Travis Carroll..... "
Brooks F. Beebe..... "
Gilbert L. Bailey..... "
Magnus A. Tate..... "
B. Decatur Smith..... "
F. Brunning..... "
J. Ambrose Johnston..... "
Henry W. Bettman..... "
Samuel Iglauer..... "
Myron D. Green..... "
Oliver P. Holt..... "
E. E. Bohlender.....Dayton.
J. H. McCassey..... "
Harry H. Hatsher..... "
Claud N. Chrisman..... "
Daniel G. Reilly..... "
William A. Burns..... "
Albert A Starmen.....Danville.
James W. Murphy.....Eagle Mills.
F. M. Michael.....Eaton.
Charles B. Ogden.....East Liverpool.
Norval A. Hamilton.....Franklin.
S. W. Williams.....Gallipolis.
Harry Sherwood Allen..... "
Richard F. O'Connell..... "
Charles G. Parker..... "
Theodore L. Chadbourne..... "
Ella G. Lupton..... "
John A. Clark.....Glencoe.
Wesley Love.....Higginsport.

E. Bertram Holst.....Haskins.
John C. Larkins.....Hillsboro.
Edward H. French.....Hamilton.
John D. Matterson.....Kalida.
E. S. Prolzman.....Kenton.
Wm. C. Snodgrass..... "
Joseph H. Krape.....Kent.
Walter C. Taylor.....Kimbolton.
Herschel Fisher.....Lebanon.
A. W. Mardis..... "
W. H. Eastman.....Levering.
Tennyson Sanders.....Leesburg.
Wilbur T. Cherry.....McArthur.
Richard E. Clevenger.....North Washington.
J. M. DeFord.....Nagerman.
Daniel C. Mills.....New Lebanon.
Francis H. Williams.....Portsmouth.
G. E. Brattain.....Payne.
W. E. Howell.....Rio Grande.
William N. Bragg.....Reading.
Joseph C. Williamson.....Sciotoville.
Harvey H. Smith.....Sharonville.
William R. Moore.....Swan.
James O. Wickerham.....Seaman.
Thomas H. McCain.....Scioto.
Oscar Michael Main.....Toledo.
Charles E. Fisher..... "
Harry L. Hall..... "
George F. Suker..... "
Philip H. Strausz..... "
James L. Watson, Jr..... "
Daniel E. Haag..... "
Julius H. Jacobsen..... "
Mark Jerome..... "
Fred A. Cobb..... "
Herbert E. Smead..... "
Willis W. Grube..... "
Charles Betts..... "
Carl W. Henderson..... "
John G. Williams.....Westwood.
John R. Owens.....Wayland.
S. Frederick Calhoun.....Cleveland.
L. S. Hoover.....Laura.

PHYSICIANS REGISTERED AT CINCINNATI
MAY 8, 9, 10, 1901

John A. Thompson, Cincinnati.
C. S. Means, Columbus.
Walter E. Murphy, Cincinnati.
G. E. Calhoun, Maynard.
J. Park West, Bellaire.
John F. George, Ft. Jennings.
W. E. Ireland, Washington, C.H.
J. P. Symons, Rockford.
A. B. Thrasher, Cincinnati.
W. W. Pennell, Fredericktown.
C. F. Dutton, Cleveland.
Wm. E. Kiely, Cincinnati.
G. W. Crile, Cleveland.
P. Maxwell Foshay, Cleveland.
J. E. Cook, Cleveland.
H. D. Rhinehart, Covington.
Ben. Freer, Akron.
G. H. Colville, Circleville.
C. W. McCollum, Erlanger, Ky.
S. H. Large, Cleveland.
H. W. Rogers, Cleveland.
Frederick C. Taylor, Cleveland.
C. O. Dunlap, McArthur.
J. C. Crossland, Zanesville.
W. B. Loney, West Union.
C. A. Hatch, Newark.
Lockhart Nelson, Hillsboro.
Albert F. McVety, Toledo.
W. D. Hamilton, Columbus.
F. F. Lawrence, Columbus.
John G. Albers, Fulda.
G. A. Fackler, Cincinnati.
James H. Buckner, Cincinnati.
James A. Duncan, Toledo.
J. C. Culbertson, Cincinnati.
H. C. Rutter, Gallipolis.
Robert Granger, Cincinnati.
John E. Sylvester, Wellston.
J. V. Kofron, Cleveland.
F. H. Pugh, Bryan.
J. E. Myers, Springfield.
Auguste Rhu, Marion.
Henry W. Bettman, Cincinnati.
Harry H. Hatcher, Dayton.
S. S. Halderman, Portsmouth.
W. E. Shaw, Cincinnati.
E. S. McKee, Cincinnati.
Albert H. Freiberg, Cincinnati.
T. K. Adamson, Maysville, Ky.
F. Wilson, Columbus.
S. Beck, Dayton.
Julia W. Carpenter, Cincinnati.
John C. Kunz, Cincinnati.
L. J. Krouse, Cincinnati.
W. D. Haines, Cincinnati.
Travis Carroll, Cincinnati.
Brooks F. Beebe, Cincinnati.
S. P. Kramer, Cincinnati.
W. C. Chapman, Toledo.
C. S. Chamberlin, Cincinnati.
C. P. Linhart, Columbus.
S. L. West, St. Clairsville.
W. C. Taylor, Kimbolton.
Joseph Sager, Celina.
Gainor Jennings, West Milton.
Rufus B. Hall, Cincinnati.
L. R. Mundhenk, West Alexandria.
D. J. Snyder, Scio.
W. Lee Milner, Wiggansville.
Louis Schwab, Cincinnati.
J. S. Caldwell, Cincinnati.
Thos. Chas. Martin, Cleveland.
D. P. Shie, Fredericksburg.
Frank D. Bain, Kenton.
H. W. Kendell, Covington.
Y. Stephenson, Georgetown.
Wesley Love, Higginsport.
E. G. Alcorn, Gallipolis.
J. L. Gahm, Jackson.
A. F. Spurney, Cleveland.
E. C. Brush, Zanesville.
D. F. Callinan, Jr., Corning.
W. K. Coleman, West Union.
S. B. Lightner, Sabina.
W. W. Smith, Portsmouth.
C. H. Mills, Toledo.
Albert Binder, Ottoville.
A. P. Ohlmacher, Gallipolis.
Robert Carothers, Cincinnati.
Byron Stanton, Cincinnati.
S. E. Allen, Cincinnati.
E. B. Holst, Haskins.
Arthur L. Knight, Madisonville.
Arch. I. Carson, Cincinnati.
A. W. Meek, Hollansburg.
A. A. Starner, Danville.
L. B. Tuckerman, Cleveland.
Edw. S. Gates, Cincinnati.
J. A. Kimmel, Findlay.
E. Gustave Zinke, Cincinnati.
Henry C. Wendel, Cincinnati.

B. P. Goode, Cincinnati.
James F. Heady, Glendale.
R. R. Petitt, Dayton.
Myron D. Green, Cincinnati.
Joseph Ransohoff, Cincinnati.
Dr. Cromer, Union, Ind.
W. H. Hord, Orangeburg, Ky.
William Judkins, Cincinnati.
Wm. Graefe, Sandusky.
Magnus A. Tate, Cincinnati.
Derrick T. Vail, Cincinnati.
E. W. Mitchell, Cincinnati.
Jacob Trush, Cincinnati.
Chas. A. L. Reed, Cincinnati.
Herschel Fisher, Lebanon.
F. C. Larimore, Mt. Vernon.
Wm. Gillespie, Cincinnati.
R. C. Jones, Cincinnati.
A. P. Renneker, Cincinnati.
J. M. Withrow, Cincinnati.
Gilbert L. Bailey, Cincinnati.
J. M. Dunham, Columbus.
E. G. Carpenter, Columbus.
R. C. Stockton Reed, Los Angeles, Cal.
Louis Stricker, Cincinnati.
Alfred Friedlander, Cincinnati.
Edward S. Johnston, Cincinnati.
J. E. Myers, Springfield.
J. C. Reeve, Dayton.
Jehu Eakins, Patriot.
John P. Dugan, Springfield.
Ed. Edwards, Delphos.
I. D. Jones, Cincinnati.
W. S. Phillips, Belle Center.
J. L. Caldwell, Waverly.
Wells Teachnor, Columbus.
C. R. Ogden, East Liverpool.
A. Ravogli, Cincinnati.
S. Iglauer, Cincinnati.
J. L. Cleveland, Cincinnati.
N. H. Fletcher, Cincinnati.
Frank Warner, Columbus.
M. A. Albl, Cleveland.
H. Freudenberger, Cincinnati.
Wilson Saffin, Carthage.
A. H. McCullough, Mansfield.
L. M. Greene, Wilmington.
P. D. Covington, Bellefontaine.
H. E. Fledderjohann, New Knoxville.
A. T. Quinn, Wilmington.
C. H. Wilson, Idaho.
Philip H. Strausz, Toledo.
Stephen E. Cone, Cincinnati.
E. G. Alcorn, Gallipolis.
M. J. Love, Bloomingville.
J. O. Stewart, Cedarville.
W. W Hamer, Bellefontaine.
Clem D. McCoy, Kenton.
Alfred Gaither, Cincinnati.
Elizabeth Campbell, Cincinnati.
J. F. Baldwin, Columbus.
Harman Good, Sulphur Grove.
Jesse Snodgrass, Kenton.
S. Lambright, Lees Creek.
T. A. Dickey, Middletown.
E. A. Murbach, Archbold.
E. M. Kent, Spring Valley.
J. M. Weaver, Dayton.
A. W. Rush, Greenville.
Edwin Ricketts, Cincinnati.
S. A. Hawes, Arcanum.
J. H. Landis, Cincinnati.
Wm. C. Schmidter, Cincinnati.
M. H. Davis, Mays Lick, Ky.
Samuel S. Thorn, Toledo.
Wm. D. Porter, Cincinnati.
O. R. Eyleer, Cynthiana.
H. E. Hiestand, Kenton.
C. Wm. Newton, Toledo.
A. R. Walker, Cincinnati.
Joseph Eichberg, Cincinnati.
C. F. Bolman, Coldwater.
F. W. Langdon, Cincinnati.
Giles S. Mitchell, Cincinnati.
Joseph A. Hall, Cincinnati.
A. W. Johnstone, Cincinnati.
S. C. Ayres, Cincinnati.
E. W. Walker, Cincinnati.
M. Fernberg, Cincinnati.
L. G. Cromer, Union City, Ind.
B. F. Lyle, Cincinnati.
Wm. Hillkowitz, Cincinnati.
J. F. Hobson, Cleveland.
N. E. Brundage, Delphos.
Frank W. Hendley, Cincinnati.
A. F. Sanders, Cincinnati.
Hugh F. Lorimer, Jamestown.
O. C. Andre, Waverly.
Horace Bonner, Dayton.
B. Tauber, Cincinnati.
C. M. Lenhart, Zanesville.
Samuel Rothenberg, Cincinnati.
A. C. Wintermeyer, Covington, Ky.
N. R. Coleman, Columbus.
Frank Winders, Columbus.
E. M. Brown, Amelia.
H. L. Hall, Toledo.

Victor Ray, Cincinnati.
A. E. Westbrook, Ashley.
J. H. McCassy, Dayton.
G. W. Blakeley, Washington, C. H.
F. F. Fledderjohann, New Knoxville.
W. J. Conklin, Dayton.
Lester Keller, Ironton.
W. A. Melick, Zanesville.
J. B. Alcorn, Gallipolis.
Henri G. Halderman, Portsmouth.
L. Woodruff, Columbus.
R. C. Belt, Milford.
E. J. Wilson, Columbus.
E. S. Prolzman, Kenton.
Jas. S. Berry, Peebles.
Dr. McCarthy, Cincinnati.
Thos. M. Wright, Troy.
W. H. Humiston, Cleveland.
E. E. Bohlender, Dayton.
Jas. G. Hyndman, Cincinnati.
W. H. Eastman, Levering.
A. M. Duncan, Bucyrus.
C. H. Humphreys, Dayton.
H. J. Death, Franklin.
Park L. Myers, Toledo.
A. H. Beam, Hillsboro.
W. W. Glenn, Hillsboro.
Geo. E. Malsbary, Cincinnati.
C. D. Palmer, Cincinnati.
R. B. Hannah, Georgetown.
D. W. Steiner, Lima.
J. C. Wickerham, Seaman.
Robt. W. Stewart, Cincinnati.
Chas. S. Evans, Cincinnati.
Geo. R. Conard, New Vienna.
T. V. Fitzpatrick, Cincinnati.
H. Kattenhorn, Cincinnati.
G. B. Evans, Dayton.
E. M. Keefe, Cincinnati.
D. R. Silver, Sidney.
J. C. Larkin, Hillsboro.
M. Ryan, Dayton.
W. H. Hord, Orangeburg, Ky.
J. H. Eichberg, Cincinnati.
S. W. Williams, Mercerville.
F. M. Michael, Eaton.
N. Stone Scott, Cleveland.
Bennetta D. Titlow, Springfield.
F. F. Ferris, Blue Ash.
John W. Hulick, Springfield.
Justin M. DeFord, Hagerman.
J. A. Davisson, Dayton.
C. O. Probst, Columbus.
James W. Miller, Cincinnati.
Louis P. Hottendorf, Cincinnati.
S. A. Ireland, Washington C. H.
J. W. Hughey, Washington C. H.
Chas. B. Hamma, Cincinnati.
D. C. Mills, Dayton.
John H. McCready, Cincinnati.
W. N. Bragg, Reading.
J. C. Reeve, Jr., Dayton.
J. W. Wood, Mt. Gilead.
W. C. Harris, Cincinnati.
J. C. Marcus, Cincinnati.
W. H. Crane, Cincinnati.
F. W. Schoemer, Cincinnati.
F. M. Edwards, Portsmouth.
Edwin Khuon, Cincinnati.
A. D. Stapleford, Cincinnati.
R. W. Miller, Cincinnati.
Thos. R. Griffin, Somerset, Ky.
Chas. R. McClure, Cincinnati.
Max Dreyfoos, Cincinnati.
J. D. Wakefield, Loveland.
Chas. S. Hamilton, Columbus.
F. E. Bunts, Cleveland.
Otto P. Geier, Cincinnati.
W. H. DeWitt, Cincinnati.
G. W. Morehouse, Sparta.
D. I. Wolfstein, Cincinnati.
W. E. Oglesbee, Waynesville.
A. M. Williamson, Dayton.
Mary E. Cadwallader, Lebanon.
H. C. Robinson, Cincinnati.
R. W. Smith, Spring Valley.
Ernst Jacob, Cincinnati.
H. J. Whitacre, Cincinnati.
Arthur Silver, Oxford.
Wm. J. Gillette, Toledo.
T. F. Bliss, Springfield.
W. J. Haine, West Farmington.
C. C. Agin, Cincinnati.
C. W. Lehman, Eaton.
A. Kanouse, Chicago.
W. T. Scott, Martinsville.
H. McGrew, Pleasant Ridge.
F. Brunning, Cincinnati.
Donovan Robeson, Greenville.
P. J. Kline, Portsmouth.
H. S. Garlick, Cincinnati.
T. A. Keck, Cincinnati.
J. A. Van Fossen, Columbus.
S. S. Baldwin, Cincinnati.
C. W. Tufts, Hartwell.
C. S. Judy, Miamisburg.
Walter B. Weaver, Cincinnati.

Elizabeth Francis.
C. E. Caldwell, Cincinnati.
J. B. Grothaus, Cincinnati.
G. M. Allen, Cincinnati.
J. W. Hall, Cincinnati.
W. W. Vinnedge, Lafayette, Ind.
J. E. Marcus, Cincinnati.
C. N. Abbott, Cincinnati.
Chas. Stammel, Cincinnati.
G. F. Cook, Oxford.
Chas. A. Hough, Lebanon.
Arthur C. Bauer, Cincinnati.
Louise Southgate, Cincinnati.
O. B. Mallon, Cincinnati.
C. F. Hegner, Cincinnati.
T. A. Kautz, Cincinnati.
C. F. Clark, Columbus.
C. R. Holmes, Cincinnati.
J. M. Withrow, Cincinnati.
C. M. Taylor, Columbus.
Richard O'Connell, Gallipolis.
B. H. Blair, Lebanon.
C. J. Spence, Cincinnati.
T. D. Meguire, Cincinnati.
A. B. Devers, Cincinnati.
C. A. Bennett, Withamsville.
N. I. Fraid, Cincinnati.

SOCIETIES AUXILIARY TO THE OHIO STATE MEDICAL SOCIETY

Societies	Secretaries
Adams County M. S.	O. T. Sproull, West Union.
Allen County M. S.	J. F. Mathews, Lima.
Ashland County M. S.	R. C. Kinnaman, Ashland.
Ashtabula, Lake and Geauga M. S.	F. D. Snyder, Ashtabula.
Belmont County M. S.	J. S. McClellan, Bellaire.
Brown County M. S.	R. B. Hannah, Georgetown.
Butler County M. S.	E. H. French, Hamilton.
Central Ohio M. S.	E. M. Hatton, Columbus.
Champaign County M. S.	E. W. Ludlow, Urbana.
Cincinnati Academy of Medicine	S. E. Cone, Cincinnati.
Clarke County M. S.	Wm. B. Patton, Springfield.
Clermont County M. S.	E. C. Ireton, Marathon.
Cleveland M. S.	John N. Lenker, Cleveland.
Clinton County M. S.	E. Briggs, Wilmington.
Columbus Academy of Medicine	J. L. Gordon, Columbus.
Cuyahoga County M. S.	F. C. Herrick, Cleveland.
Darke County M. S.	S. G. Sewell, Greenville.
Dayton Academy of Medicine	A. H. Lane, Dayton.
Defiance County M. S.	Katherine Hoover, Defiance.
Delaware County M. S.	J. B. Woodworth, Delaware.
Eastern Ohio Medical Association	J. C. M. Floyd, Steubenville.
East Liverpool Medical Association	F. Laughlin, East Liverpool.
Erie County M. S.	H. C. Schoepfle, Sandusky.
Gallia County M. S.	L. B. Turner, Bidwell.
Greene County M. S.	M. I. Marsh, Cedarville.
Hancock County M. S.	D. C. Hughes, Findlay.
Hempstead Memorial Academy of Med.	M. S. Pixley, Portsmouth.

Societies	Secretaries
Highland County M. S.	Lockhart Nelson, Hillsboro.
Holmes County M. S.	D. S. Olmstead, Millersburg.
Jackson County M. S.	J. J. McClung, Glen Roy.
Jefferson County M. S.	A. A. Elliott, Steubenville.
Lorain County M. S.	A. M. Webster, Lorain.
Lucas County M. S.	W. W. Grube, Toledo.
Mahoning County M. S.	O. W. Howard, Youngstown.
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Meigs County M. S.	D. Sisson, Middleport.
Miami County M. S.	J. D. Wakefield, Loveland.
Miami Valley M. S.	Con Gatch, Milford.
Montgomery County M. S.	Horace Bonner, Dayton.
Morrow County M. S.	J. W. Wood, Mt. Gilead.
Muskingum County M. S.	W. C. Bateman, Zanesville.
North Central Ohio M. S.	S. E. Findley, Mansfield.
Northwestern Ohio Med. Ass'n	J. P. Baker, Findlay.
Perry County M. S.	R. L. Richards, New Lexington.
Pike County M. S.	C. H. Wilson, Idaho.
Ross County M. S.	F. M. Smallwood, Chillicothe.
Shelby County M. S.	C. E. Johnston, Sidney.
Springfield Academy of Medicine	C. L. Minor, Springfield.
Stark County Academy of Medicine	E. M. Tyrrell, Canton.
Stillwater M. S.	D. W. Copeland, Somerton.
Toledo Medical Association	C. P. Wagar, Toledo.
Tuscarawas County M. S.	Martha Shalter, Canal Dover.
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Union Medical Association of N. E. Ohio	J. H. Seiler, Akron.
Warren County M. S.	E. S. Stevens, Lebanon.
Washington County M. S.	J. B. McClure, Marietta
Wayne County M. S.	H. Blankenhorn, Orrville.

List of the Members of the Local Medical Societies Auxiliary to the Ohio State Medical Society

ADAMS COUNTY MEDICAL SOCIETY

Auxiliary since 1888 Annual Meeting in June

J. W. Guthrie.....President.
C. W. Edgington.....Vicepresident.
O. T. Sproull.....Secretary.
M. L. Downing.....Treasurer.

MEMBERS

Berry, J. S., Peebles.
Bunn, Jas. W., West Union.
Carboy, C. S., Winchester.
Coleman, W. K., West Union.
Connell, W. R. S., Manchester.
Downing, M. L., Peebles.
Edgington, C. W., Blue Creek.
Ellis, W. H., Bentonville.
Gaston, E. M., Tranquility.
Guthrie, J. W., Manchester.
Irwin, R. W. E., Stouts.
Jordon, J. D., Manchester.
Kirkpatrick, O. B., Cherry Fork.
Lockhart, J. M. Eckmansville.
Loney, W. B., West Union.
McCormick, Geo. D., Wainsley.
Sproull, O. T., Bentonville.
Stephenson, R. A. Manchester.
Stevenson, Titus, Cherry Fork.
Wickerham, J. O., Seaman.
Wikoff, C. T., Decatur.
Wittenmeyer, J. M., Peebles.

ALLEN COUNTY MEDICAL SOCIETY

E. G. Burton.....President.
W. B. VanNote.....Vicepresident.
J. F. Mathews.....Secretary and Treasurer.

MEMBERS

Bates, F. L., Lima.
Bennett, H. C., Lima.
Bice, A. W., Lima.
Burton, E. G., Lima.
Collins, C. C., Lima.
Goebel, Anna M., Lima.
Hiner, S. B., Lima.
Hoover, W. E., Lima.
Huntley, J. H., Lima.
Jones, A. L., Lima.
Laudick, L. F. Lima.
McCall, E. E. Lima.
McKnight, Virgina, Lima.
Mathews, J. F., Lima.
Mumaugh, S. S., Lima.
Parent, W. H., Lima.
Roush, Wm., Spencerville.
Rudy, A. S., Lima.
Steiner, D. W., Lima.
Steiner, I. F., Lima.
Stueber, F. G., Lima.
Stueber, L. J. Lima.
Terwilliger, T. R., Lima.
Vail, J. B., Lima.
Van Note, W. B., Lima.
Weadock, E. G., Lima.
Weadock, T. M., Lima.

ASHTABULA, LAKE AND GEAUGA MEDICAL SOCIETY

Auxiliary since 1896 — Annual Meeting in January.

H. E. Whitsey.....President.
J. M. Graham.....First Vicepresident.
C. L. Fox.....Second Vicepresident.
F. D. Snyder.....Secretary.
W. S. King.....Treasurer.

MEMBERS

Aldrich, D. B., Ashtabula.
Amidon, H. N., Painesville.
Anderson, G. S., Andover.
Baker, C. D., Conneaut.
Battles, Mary, Ashtabula.
Baxter, R. J., Conneaut.
Blakeslee, O. O., Conneaut.
Block, J. M., Montville.
Bollard, G. D., Jefferson.
Burrows, S. S., Geneva.
Buys, Frank, Painesville.
Case, Clarence E., Ashtabula.
Case, F. D., Ashtabula.
Clark, F. R., Trumbull.
Crockett, Ernest, Ashtabula.
Cossit, D. S., Conneaut.
Dickson, J. A., Ashtabula.
Dickson, O. A., Jefferson.
Dorman, H. W., Ashtabula.
Edwards, P. J., Huntsburg.
Ellsworth, W. O., Austinburg.
Fisher, F. W., Ashtabula.
Flower, W. R., Ashtabula.
Fox, C. L., Kingsville.
Gilchrist, W. L., Ashtabula.
Graham, J. M., Williamsfield.
Grover, C. T., Orwell.
Hogan, J. J., Ashtabula.
Hopkins, A. W., Ashtabula.
Houghtaling, F. M., Austinburg.
House, C. H., Painesville.
King, W. S., Ashtabula.
Leet, Wm., Conneaut.
Merriam, E. D., Conneaut.
Merriman, D. J., Painesville.
Osborn, H. M., Kellogsville.
Palmer, D. G., Geneva.
Pomeroy, A. L., Windsor.
Pomeroy, O., Chardon.
Quayle, C. H., Madison.
Robinson, O. C., Windsor.
Shaefer, J. A., Ashtabula.
Shalto, H. J., Colebrook.
Snyder, F. D., Ashtabula.
Tibbits, F. E., Geneva.
Tower, B. M., Conneaut.
Upson, F. W., Conneaut.
Warner, A. D., Burton.
Webster, G. E., Kingsville.
Weiss, W. L., Rock Creek.
Whitsey, H. E., Ashtabula.
Wilson, H., Conneaut.

BELMONT COUNTY MEDICAL SOCIETY

Auxiliary since 1887 — Bimonthly Meetings at Bellaire.

A. J. Heinlein.....President, Bridgeport.
S. L. West.....Vicepresident.
A. C. Beetham.....Treasurer.
Board of Censors—J. P. West, C. C. Cole, A. C. Beetham, A. J. Hobson, B. O. Williams.
J. S. McClellan.....Secretary.

MEMBERS

Archer, John C. C., Neffs.
Beetham, A. C., Bellaire.
Berry, Jacob, Alledonia.
Blackford, J. M., Martins Ferry.
Boone, D. W., Bellaire.
Boone, J. S., Powhatan.
Calhoun, G. E., Maynard.
Clark, J. A., Glencoe.
Cole, C. C., Bridgeport.
Cooper, J. W., Bellaire.
Cope, E. C., Barton.
Diven, A. W., Martins Ferry.
Drennen, J. N., Loydsville.
Eddy, H. B., Bellaire.
Ely, J. S., Barnesville.
Greg, S. T., Belmont.
Hawthorn, E. L., Colerain.
Heinlein, A. J., Bridgeport.
Hewetson, A. H., St. Clairsville.
Hobson, A. B., Flushing.
Hobson, J. A., Flushing.
Howells, J. O., Bridgeport.
Judkins, W. L., Barnesville.
Keesor, O. M., Beallsville.
Kern, J. T. W., Bellaire.
Korell, F. A., Key.
Korner, A. H., Woodsfield.
Lane, F. W. Fairview.
McClellan, J. S., Bellaire.
McClester, J. C., Harrisville.
McMasters, I. N., Demos.
Marsh, V. N., Flushing.
Minesinger, J. L., Bellaire.
Moffatt, John M., Businessburg.
Morrison, Paul, Martins Ferry.
Murphy, M. D., Bethesda.
Ong, A. R., Martins Ferry.
Parry, J. R., Woodsfield.
Phillips, D. F., Morristown.
Piersol, Joseph, Bellaire.
Piper, J. W., Bethesda.
Piper, W. O. S., Bellaire.
Riggs, E. N., Powhatan.
Shepherd, D. O., Barnesville.
Thompson, W. E., St. Clairsville.
Webster, J. V., Flushing.
West, H. S., McMechen, W. Va.
West, J. P., Bellaire.
West, S. L., St. Clairsville.
Williams, B. O., Martins Ferry.
Wilson, J. G., Colerain.
Workman, J. C., Uniontown.

BROWN COUNTY MEDICAL SOCIETY

A. W. Mitchell.....President.
A. W. Francis.....Vicepresident.
R. B. Hannah.....Secretary and Treasurer.

MEMBERS

De Vore, F. F., Ripley.
Evans, C. W., Russellville.
Francis, A. W., Ripley.
Heaton, T., Aberdeen.
Hannah, R. B., Georgetown.
Leonard, L. H., Mt. Orab.
Love, Wesley, Higginsport.
Markley, Lee, Georgetown.
Mitchell, A. W., Georgetown.
Stephenson, Y., Georgetown.
Shelton, H. P., Georgetown.
Shelelon, S. B., Five Mile.

BUTLER COUNTY MEDICAL SOCIETY

Auxiliary since 1852 Annual meeting in January

Aug. Schumacher.....President.
J. E. Torrence.....Vicepresident.
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Millikin, Mark, Hamilton.
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Clark, C. F.
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Dennison, A. M.
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Emerick, E. J.
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Pearce, H. M., Urbana.
Pickering, G. W., Urbana.
Preston, H. S., Mutual.
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Bange, Theo., 1603 Westwood.
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Bell, Albert J., 108 Malvern Pl.
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Belt, R. C., Milford.
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Blau, J. M. H., 1056 Russell, Covington, Ky.
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Bonifield, C. L., 432 W. 4th.
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Brady, M. B., 3708 Eastern.
Bramble, D. D., 511 Broadway.
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Brown, Joseph E., 1318 Race.
Brown, Mark A., 628 Elm.
Brown, W. R., 1234 Parallax.
Bruce, Clara A., 656 Neave.
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Buchanan, Henrietta A., 1049 Purcell.
Buckner, Jas. H., 333 E. 4th.
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Butler, O. P., Hartwell.
Buttermiller, J. C., 2530 Auburn.
Cadwallader, J. C., Norwood.
Caldwell, C. E., 1110 Cross Lane.
Caldwell, J. S., 410 W. 8th.
Cameron, Otis L., 903 Race.
Campbell, Elizabeth, Somerset, Avondale.
Carothers, Robert, 413 Broadway.
Carpenter, Julia W., 908 E. McMillan.
Carroll. Travis, 114 E. 8th.
Carson, Arch I., 46 E. McMillan.
Casello, J. B., 627 W. 8th.
Castle, Charles H., 8 E. 8th st.
Christen, T. A., 14 E. 7th st.
Cleveland, J. L., 838 W. 7th.
Colter, Leroy S., 3410 Clifton.
Cone, S. E., 719½ Central ave.
Conner, P. S., 215 W. 9th.
Cook, L. E. 3519 Warsaw.
Crane, W. H., 20 W. 9th.
Cross, F. B., 32 Garfield Pl.
Culbertson, J. C., 317 W. 7th.
Curry, F. C., Milford.
Dale, George, Main & Cleveland.
Dandridge, N. P., 422 Broadway.
Danziger, Leo, 34 W. 9th.
Davies, D. J., 104 W. Liberty.
Davis, Clark W., 902 Elm.
Davis, John L. S. E. cor. 4th and Central.
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De Courcy, W. E., 827 W. 8th.
Denman, L. M., 135 W. 9th.
Devers, A. B., 3334 Main.
De Witt, Wm. H., 61 Auburndale Pl., Mt. Auburn.
Dickey, Eliza J., Children's Episcopal Hospital, Main, near Mason.
Dickinson, T. F., 2457 Eastern.
Diekmeier, H. P., 10 Vine st.
Dodd, C. W., Neave Bldg.
Dodds, J. W., Mt. Washington.
Donnell, C. L., 936 W. 8th.
Dowling, Francis, 216 W. 9th.
Drury, A. G., 625 W. 8th.
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Dunham, Kennon, N. W. Cor. Auburn av. and McMillen st.
Eger, George, Jr., 825 Dayton.
Eichberg, Joseph, 22 W. 7th.
Eichberg, Julius H., The Groton.
Erdhaus, F. J., 709 Carr.
Erwin, J. C., 603 W. 8th.
Evans, Chas. Seth, 17 Garfield Pl.
Everets, Orpheus, College Hill.
Fackler, George A., 112 Garfield Pl.
Falls, W. H., 534 W. 7th.
Fee, Frank 3968 Eastern.
Feid, L. J., 2056 Staebler.
Fels, Geo. W., 113 W. 6th st.
Fennel, O. W., 3018 Jefferson.
Fischer, Philip, 726 Laurel.
Fitzpatrick, T. V., 32 Garfield Pl.
Fletcher, M. H., 11 E. 7th.
Foertmeyer, C. H., 836 W. 8th.
Fogel, Leo, 708 Clinton.
Forcheimer, F., Ortiz Bldg.
Forcheimer, W. F., Ortiz Bldg.
Ford, Starr, 504 W. 7th st.
Fraid, N. I., 1019 W. Liberty.
Francis, R. W. C., 534 W. 7th.
Freiberg, A. H., 706 Walnut.
French, Jas. M., 426 W. 8th.
Freudenberger, H., 1420 Race.
Friedlander, Alfred, 22 W. 7th.
Fuls, Otto, 1636 Hoffner.
Gaither, Alfred, The Groton.
Garlick, H. F., 32 Garfield Pl.
Gates, E. S., 4917 Eastern.
Gau, H. F., 907 Nassau.
Gavin, W. J., 908 Clark.
Geier, Otto P., 124 Garfield Pl.
Gillespie, Wm., May and June.
Gillette, Arthur E., 2456 Eastern.
Glaeser, Bertha L., 430 W. 8th.
Good, P. W., 2145 Vine.
Goode, B. P., 1812 Baymiller.
Gores, F. C., 938 E. McMillan.
Grandjean, Arthur, 1323 Race.
Granger, Robert, 902 Elm st.
Green, Myron D., 3015 W. 6th.
Greiwe, John E., 1344 Broadway.
Griess, Walter R., Cin. Hospital.
Grimes, S. B., 28 W. 7th.
Grimm, Adolph, 49 E. McMicken.
Grothaus, J. B., 1623 Baymiller.
Gunckel, J. S., The Groton.
Hahn Chas. D., 30 W. 7th st.
Haile, Geo. N. E. C., 3rd and Broadway.
Handley, D. C., 36 Garfield Pl.
Haines, W. D., 1606 Freeman.
Hall, Rufus B., 628 Elm.
Hall, Jos. A., 2513 Auburn ave.
Hamma, C. B., Western and Dayton.
Hampton, Nellie B., 40 E. McMillan.
Harff, B. G., 2843 Woodburn.
Harmon, F. W., Supt. Longview Hospital, Carthage.
Harris, James, 286 W. McMicken.
Harris, W. C., The Groton.
Hart, Thos. P., 533 E. 5th.
Hays, T. W., 18th and Vine.
Heady, J. F., Glendale.
Heidingsfield, M. L., 22 W. 7th.
Heise, O. N., 16 Garfield Pl.
Held, H. P., 1901 Vine.
Hellman, F. F., 1327 Broadway.
Hendley, F. W., 785 E. McMillan.
Heyl, Ashton B., Ft. Thomas, Ky.
Hiller, Carl, 706 Walnut.
Hillkowitz, Wm., 704 Race.
Hinckley, H. D., The Sorrento Building.
Hines, H. H., 34 Garfield Pl.
Holmes, C. R., 8 E. 8th.
Holt, O. P., 134 W. 9th.
Hoppe, H. H., 32 Garfield Pl.
Hottendorf, L. P., 810 Richmond.
Hydman, J. G., 22 W. 9th.
Iglauer, Sam'l, 22 W. 7th.
Iliff, Chas E., 122 W. 7th.
Ingram, Robert, 510 Clark.
Ingalls, H. A., 628 Elm st.

Isham, A. B., 849 Oak st.
Jacob, E., 26 Findlay.
Johnston, J. A., 412 Everett.
Johnston, E. S., 412 Everett.
Johnstone, A. W., Madisonville, opposite Fairfield.
Jones, I. D., 1014 E. McMillan.
Jones, R. C., 2373 Park.
Jones, W. E., 911 E. McMillan.
Joseph, Leopold, 803 Race.
Judkins, Wm., 122 Garfield Pl.
Junkerman, G. S., 231 W. Court.
Kattenhorn, H., 814 E. 3rd.
Kautz, F. A. Jr., 1218 Walnut.
Keck, Peter A., 1832 Race.
Keefe, E. M., 1140 St. Gregory.
Kelly, W. H., 1006 Madison, Covington, Ky.
Kemper, Andrew C., 303 Broadway.
Kempton, W. D., Glenn Bldg.
Kendig, W. C., Longview Hospital, Carthage.
Khuon, Edward, 1930 Central.
Kiely, W. E., 420 Broadway.
King, J. R., 1268 E. 3rd st.
Knight, A. L., Madisonville.
Knight, Wm., 111 Garfield Pl.
Koehler, Max, 124 W. 9th.
Kramer, S. P., 21 Garfield Pl.
Krieger, G. L., Madisonville.
Krouse, L. J., The Groton.
Kugler, Frank E., 3309 Price.
Kuntz, John C., 511 Broadway.
Lamb, F. B., Glendale, O.
Landis, John H., 815 Race.
Landman, L. H., 503 W. 9th.
Landy, Edwin F., 3015 Colerain.
Langdon, F. W., 5 Garfield Pl.
Lehman, B. F., Home City, O.
Lewis, W. E., 409 E. 5th.
Lyle, B. F., 2302 W. 8th st.
Maloney, J. J., 427 Clark.
Mackenzie, J. C., 20 W. 7th.
MacMillan, Wade, Auburn and Landress.
Macready, J. H., 608 Delhi.
Malsbary, Geo. E., 1631 Sycamore.
Marcus, Jos. C., 411 W. 8th.
Marsh, F. O., 1616 Main.
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Mechan, J. C., 639 W. 7th.
McKee, E. S., 10 W. 7th.
Mente, W. F., 1639 Sycamore
Meyers, C. H., 127 W. Liberty.
Miles, A. J., 9 E. 8th.
Miles, May S., McMillan & Milk.
Miller, Isaac C., 2544 Auburn ave.
Miller, Jno. P., 1814 Linn st.
Miller, J. P., 2355 Ohio ave.
Miller, J. W., 29 E. 9th.
Miller, R. W., 608 Carlisle ave.
Miner, C. L., 8 E. 8th.
Mitchell, E. W., Reading Road & Ridgeway.
Mitchell, Giles S., 10 W. 7th.
Mithoefer, Wm., 321 Broadway.
Molloy, J. J., 717 Madison, Covington, Ky.
Moloney, L. A., 731 W. 5th.
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Moss, E. H., 504 E. Liberty.
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Murphy, W. E., 628 Elm.
Murphy, John W., The Groton.
Nickels, Samuel, 1406 John.
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Orr, Geo. B., 423 E. 4th.
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Paul, Charles M., 36 Garfield Pl.
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Querner, L. A., 1130 Race.
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Ratterman, B. J., 1532 Elm.
Ratterman, Frank L., 2412 Ohio.
Ravogli, A., 5 Garfield Pl.
Ray, Victor, The Groton.
Reamy, T. A., Reading Road and Oak.
Reed, Chas. A. L., The Groton.
Reed, J. G., The Groton.
Reemelin, R. H., 1209 Elm.
Renneker, A. P., 1550 Baymiller.
Reynolds, C. W., 48 W. 4th, Covington, Ky.
Ricketts, B. M., 4th & Broadway.

Ricketts, E. S., 408 Broadway.
Riley, Estella M., 728 W. 7th.
Rothenberg, S., 626 W. 8th.
Rowe, James W., 3514 Reading Road, Avondale.
Rulinson, Ida B., 811 Considine.
Saffin, Wilson, Carthage.
Sanders, A. F., The Groton.
Sanfield, Bernard, 20 W. Elder.
Sattler, Eric E., 109 Garfield Pl.
Sattler, Robt., The Groton.
Savage, W. E., 215 W. 9th.
Scheerer, Frank, 1812 Baymiller.
Schenck, W. Edwards, 5 Garfield Pl.
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Schmidter, W. C., Linn & Findlay.
Schorr, P. E., 2203 W. Clifton ave.
Schrickel, L. C., 1631 Walnut.
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Schwab, E., 1625 Madisonville.
Schwab, Louis, 1641 Blue Rock.
Schwagmeyer, A. C., 1909 Elm.
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Shields, Edward H., 5 Garfield Pl.
Shields, Percy, 5 Garfield Pl.
Smith, E. O., 1223 Walnut.
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Stapleford, A. D., 2647 Western.
Stark, O. W., 13 E 8th.
Stark, Sigmar, 13 E. 8th.
Stevenson, J. W., U. S. Marine Hospital.
Stewart, Robert W., Ortiz Bldg.
Straehley, E. O., 1814 Linn.
Stricker, Louis, The Groton.
Sudhoff, Geo. T., 1414 Elm.
Swartsel, S. C., 1786 Elmore st.
Taft, J., 628 Elm.
Taft, W., 628 Elm.
Tangeman, C. W., 20 W. 9th.
Tate, M. A., 3rd and Broadway.
Tate, Ralph B., 361 E. 3rd.
Tauber, B., 213 W. 9th.
Taylor, Van Deveer, 2913 Woodburn.
Taylor, Wm. H., 553 W. 7th.
Terrill, Jonas C., Covington, Ky.
Terlinden, H. T., 740 Laurel st.
Thomas, Harry, 1718 Freeman.
Thomassen, W. J., 942 York, Newport, Ky.
Thompson, E. H., 8 E. 8th.
Thompson, John A., 628 Elm.
Thornton, R. H., Newport, Ky.
Thrasher, A. B., The Groton.
Thrasher, Wade, The Groton.
Thuman, G. H., 1702 Elm.
Tischbein, F. J., Riverside.
Topmoeller, Jos. M., 823 Bank.
Trush, J., 437 E. 5th.
Tunison, I. F., 436 E. 5th.
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Vaughan, N. C., 2450 Gilbert ave.
Wadsworth, L. C., 219 E. 6th Newport, Ky.
Walker, Edward W., 30 Garfield Pl.
Watson, Joseph, 2141 Eastern.
Weatherhead, D. E., The Groton.
Weaver, W. B., 32 Garfield Pl.
Webb, Dudley, 413 Broadway.
Welter, Fred, 310 Franklin st.
Wendel, H. C., 519 W. McMicken.
Wenning, W. H., 722 Laurel.
Whallon, R. H., Langland & Chase.
Whitacre, Horace J., 2120 Auburn.
Whitacre, Marion, 2729 Woodburn.
Williams, John G., Cheviot.
Williams, Martha R., 903 Elm.
Williams, W. M., The Groton.
Willson, John B., 206 E. 4th.
Winn, J. J., Norwood.
Withrow, John M., 22 W. 7th.
Wittkamp, T. M., 1437 Walnut.
Wolfstein, D. I., 22 W. 7th.
Woodward, W. R., 108 W. 9th.
Young, Dan S., 418 W. 7th.
Zenner, Philip, Glenn Bldg.
Zimmerman, Carolyn E., 813 Washington, Newport, Ky.
Zinke, E. Gustav, 13 Garfield Pl.

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Wm. B. Patton.....Secretary and Treasurer.

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Davis, E. B., North Hampton.
Davis, E. F., Springfield.
Davy, J. O., Springfield.
Dugan, J. P., Springfield.
Gotwald, D. K., Springfield.
Hebbel, Robert C., Enon.
Hiestand, H. L., Donnelsville.
Hulick, J. W., Springfield.
Hunt, W. S., Springfield.
Hutchings, S. R., Springfield.
Kay, Isaac, Springfield.
Kay, Clarence H., Springfield.
Link, J. A., Springfield.
McClintock, A., New Moorefield.
Minor, C. L., Springfield.
Moore, J. J., South Charleston.
Myers, J. E., Springfield.
Patton, M. V., Springfield.
Patton, Wm. B., Springfield.
Ramsey, Clarence, Springfield.
Reade, T. M., Springfield.
Riegel, T. L., Thackery.
Rind, Robert C., Springfield.
Rodgers, John H., Springfield.
Seys, H. H., Springfield.
Smith, W. A., Springfield.
Smith, E. H., Vienna Cross Roads.
Spence, W. D., Springfield.
Titlow, B. D., Springfield.
Vance, A. H., Springfield.

CLERMONT COUNTY MEDICAL SOCIETY

Auxiliary since 1854 Annual Meeting in October

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P. Kennedy .....Treasurer.

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Belt, R. C., Milford.
Bennett, C. A., Withasville.
Bishop, L. W., Batavia.
Bivens, W. A., New Hope.
Bradley, Ed., Batavia.
Brown, E. M., Amelia.
Brown, H. M., Cincinnati.
Bryan, S. A., Point Pleasant.
Canter, S. A., Pt. Isabel.
Carmichael, W. A., Loveland.
Curry, F. C., Milford.
Darby, F. H., Columbus.
Dickinson, F. F., Columbia.
Donham, H. D., Mt. Washington.
Erdman, R. F., New Richmond.
Fee, E. B., Georgetown.
Fitzpatrick, T. V., Cincinnati.
Fomorin, J. L., Marathon.
Hines, G. L., Williamsburg.

Hulick, J. W., Springfield.
Ireton, E. C., Marathon.
Kennedy, C. L., Laurel.
Kennedy, P., Laurel.
Love, J. H., Hamersville.
Love, Wesley, Higginsport.
Mann, J. W., Newtonville.
Marsh, M. I., Cedarville.
McClaim, J. B., Sardinia.
McKee, A. B., Felicity.
McKibben, J. T., Cincinnati.
McKibben, Wm., Cincinnati.
Mitchell, T. A., Owensville.
Moore, A. C., Amelia.
Morris, A., Goshen.
Mullin, T. J., New Richmond.
Redrow, Isaac, Williamsburg.
Scott, Thos., New Hope.
Scott, Wm., Loveland.
Strope, W. J., Hamersville.
Thompson, W. E., Bethel.
Tucker, W. E., Felicity.
Witham, Samuel, Withamsville.

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C. J. Aldrich, M. D.....	"	"	1902
W. W. Holliday, M. D.....	"	"	1902
J. H. Lowman, M. D.....	"	"	1903
W. H. Humiston, M. D.....	"	"	1903
J. G. Spenzer, M. D.....	"	"	1903
J. H. Belt, M. D.....	"	"	1904
W. H. Knowlton, M. D.....	"	"	1904
O. B. Campbell, M. D.....	"	"	1904

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Albl, M., 1464 Broadway.
Aldrich, C. J., 612 Prospect.
Allen, D. P., 278 Prospect.
Arnold, G. D., 716 E. Prospect.
Ashmun, G. C., 794 Republic.
Bailey, Robt., 468 Willson.
Baker. A. R., 122 Euclid.
Baker, L. K., Rose Bldg.
Ballard, H. C., 1067 Pearl.
Bard, I. W., 1341 Lorain.
Bard. L. A., 97 Merchant.
Barger, W. T., 484 Wade Park.
Bayne, E. C., 105 Perry st.
Becker, H. A., 1207 Pearl.
Belkowski, I. W., 330 Woodland.
Belt, J. H., 1434 Willson.
Bernstein, S. L., 1351 Willson.
Biggar, H. F., Jr., 166 Euclid.
Bishop, H. F., 32 Hillburn.
Bliss, H. C., 413 Woodland.
Boesger. M. A., 862 Lorain.
Boggs, Jessie, 1257 Euclid.
Borts, M., 975 Woodland.
Brainerd, H. C., 1712 Superior.
Briggs, Chas., The New Amsterdam.
Brockett, A. J., 32 Hawthorne.
Brokaw, W. F., 1040 Willson.

Brown, Ernest E., 531 Prospect.
Bruner, W. E., 514 New England Bldg.
Buell, J. J., 604 Pearl.
Bunts, F. E., Osborne Bldg.
Burdick, H. J., 519 Cedar.
Burke, T. A., Rose Bldg.
Bushnell, Sophia B., 517 Cuyahoga Bldg.
Byrne, P. J., 299 Viaduct.
Calnoun, S. F., 69 Crawford.
Calkins, Thos. G., 2500 Superior.
Campbell, A. D., 2209 Superior.
Campbell, O. B., 993 Cedar.
Capener, W. H., 415 Case.
Carey, M. J., 791 Doan.
Carter, E. P., 8 Hayward st.
Case, G. B., 106 Euclid.
Chadwick, L. S., 1824 Euclid.
Chatfield, A. E., 393 Prospect.
Childs, L. W., Wade Park & Dunham.
Clapp, H. T., The Arcade.
Clark, Frank S., 114 Euclid.
Clark, Wm., 778 Central.
Coates, B. O., 1732 Euclid.
Cogan, J. E., 1117 Superior.
Conrad, Wm., 734 Rose Bldg.
Cook, A. J., 2220 Willson.
Cook, J. E., 514 New England Bldg.
Coontz, W. H., The Auburn, Euclid and Penrose.
Corlett, W. T., 553 Euclid.
Crile, G. W., 275 Prospect.
Crowe, E. P., 1968 Superior.
Cudell, A., 538 Payne.
Cushing, E. F., 1160 Euclid ave.
Cutler, E. J., 270 Franklin ave.
Darby, J. E., 850 Doan st.
Davis, F. W., 258 Franklin.
Dial, Emery L., 1847 Lorain st.
Dickinson, J., 32 Sibley.
Dutton, C. F., 122 Euclid.
Ebersole, W. G., Rose Bldg.
Eddy, R. C., 933½ Woodland.
Ehret, G. A., 89 Euclid.
Erwin, J. J., 890 Doan.
Eyman, H. C., Massillon State Hospital.
Farnsworth, G. B., 679 Dennison.
Feil, G. R., 1351 Willson.
Fischer, Robert, Dunham & Lexington.
Fisher, H. M., 426 Rose Bldg.
Foote, C. G., 961 Prospect.
Fortlage, H., 451 Pearl.
Foshay, P. M., 89 Euclid.
Francisci, M., 765 Lorain.
Franke, F. C., 703 Woodland.
Friedmann, I., 465 St. Clair.
Friedrich, M., Rose Bldg.
Friend, Jno. M., 1065 Pearl.
Fritch, J. C., 330 Pearl.
Fry R. D., Rose Bldg.
Gallagher, J. V., 800 Superior.
Gartland, J. L., 466 Willson ave.
Geib, Frank J., Seville Block, Cor. Willson & Prospect.
Gentsch, Chas., 167 Franklin.
George, O. E., 1207 Pearl.
Goetz, E. P., 966 Payne.
Goetz, F. E., 581 Woodland.
Griffiths, T. E., 1108 Woodland.
Gunn, R. D. A., 25 Windsor.
Hamann, C. A., 744 Prospect.
Handerson, H. E., 444 Dunham.
Hanson, D. S., 1419 Broadway.
Haskins, H. D., 2070 Detroit st.
Hatcher, Robt. A., 782 Republic.
Havlicek, F. J., 133 Root.
Heath, J. A., 10 Marquette.
Heimlich, D., 521 Woodland.
Herbkersman, F. H., 1831 Broadway.
Herr, H. S., 1195 Pearl.
Herrick, H. J., Jr., 365 Erie.
Herrick, Fredk. C., 367 Erie.
Herrick, W. H., 176 Euclid.
Hess, J. L., 744 Willson.
Hickin, Frank W., 342 Jennings.
Hobson, J. F., 429 Prospect.
Hole, Chas. M., 300 Cedar.
Holliday, B. W., 520 Prospect.
Holliday, W. W., 2588 Broadway.
Holmes, G., 688 W. Madison.
Hoover, C. F., Rose Bldg.
Hosick, W. A., 1613 Woodland.
House, A. F., 1051 Superior.
Howard, A. B., Cleveland State Hospital.
Howard, W. T., Jr., 80 Dorchester.
Howland, A. P., 63 Livingston.
Humiston, W. H., 122 Euclid.
Hutchins, Fannie C., The Leighton, Jennings.
Hyde, W. H., 247 W. Madison.
Ingersoll, J. M., 50 Euclid.
James, W. S., 1519½ Lorain.

Jones, A. W., Lindus st.
Jones, J. Arthur, 424 Willson.
Kaestlen, S. E., 50 McLean.
Kelley, James F., Cleveland State Hospital.
Kelley, S. W., 1150 Superior.
Kinnaman, C. L., 1474 Cedar.
Knowlton, W. A., 530 Jennings.
Kofron, J. V., 1560 Broadway.
Kahn, Max, 698 Woodland.
Kopfstein, F. T., 2300 Superior.
Krebs, P. H., 1007 Pearl.
Large, S. H., New England Bldg.
Laffer, W. B., 962 Willson.
Lauder, E. S., The Osborne.
Lee, H. J., 73 Tilden.
Leick, Geo. F., 503 Prospect.
Lenker, J. N., The Osborne.
Lewis, J. M., Rose Bldg.
Lincoln, Walter, Osborne Bldg.
Lincoln, Wm. R., Osborne Bldg.
Loewenthal, M., 1200 Case.
Lower, W. E., Osborne Bldg.
Lowman, J. H., 441 Prospect.
Lucas, V. C., 1158 Pearl.
Lucas, W. H., 853 Lorain.
Luck, H. C., 122 Euclid.
Lueke, Alex. W., 418 Rose Bldg.
Lueke, E. H., 418 Rose Bldg.
Mabley, H. C., 2088 Euclid.
MacTaggart, R. G., 436 Pearl.
McGee, J. B., 1405 Woodland.
McNamara, A. J., 176 Euclid.
Martin, T. C., 1077 Prospect.
Marvin, A. H., 106 Euclid.
Meredith, W. G., 2238 Euclid.
Merriam, W. H., 820 Fairmount.
Miller, Amanda H., 997 Pearl.
Milliken, B. L., 278 Prospect.
Mizer, T. J., 797 Lorain.
Moore, J. M., 1900 St. Clair.
Moorehouse, Geo. W., 39 Cutler.
Morton, F. J., 962 Lorain.
Mueller, O., 509 Pearl.
Nachtigall, B. A., 1207 Pearl
Nelson, C. F., 122 Euclid.
Nungesser, J. J., 97 Lyman.
Nydegger, R., 166 Jennings.
Ormsby, H. B., 249 Central.
Osborn, W. O., The Osborne.
Oster, L. W., 1261 St. Clair.
Parke, M. J., 331 Prospect.
Parker, C. B., 425 Euclid.
Paulin, N. O., 962 Willson.
Pav, Anton, 1574 Willson.
Payne, F. A., 616 Willson.
Perrier, J., 1014 Willson.
Peskind, A., 1354 Willson.
Pettus, W. J., Marine Hospital.
Pipes, J. R., 341½ Prospect.
Pollock, R., 558 Hough.
Powell, H. H., 467 Prospect.
Pressey, A. J., 900 Fairmount.
Price, Norman W., 3425 Euclid
Quirk, H. W., 1257 Euclid.
Reich, L., 550 Woodland.
Rhodes, E. B., 3425 Euclid.
Riegelhaupt, Sam'l, 659 Scovill.
Riley, J. A., 1314 Cedar.
Robb, Hunter, 702 Rose Bldg.
Rogers, H. W., 128 Franklin.
Rosenberg, E., 1597 Woodland.
Rosenwasser, M., 722 Woodland.
Rosewater, N., 1351 Willson.
Ruedy, R. E., Rose Bldg.
Russell, G. C., Williamson Bldg.
Sager, B. E., 243 Crawford.
Sawyer, J. P., 122 Euclid.
Sawyer, P. H., 54 Streator.
Scott, N. Stone, 531 Prospect.
Schmoldt, F. J., 1777 Superior.
Schnee, Robt. G., 2004 Superior.
Season, E. H., Doan & Euclid.
Sechrist, Cora, Rose Bldg.
Selleck, S. L., 1448 Willson
Shackleton, W. E., Osborne Bldg.
Sherman, H. G., Rose Bldg.
Shirkey, U. S. L., 1357 Lorain.
Siegelstein, L. E., 333 Woodland.
Simons, F. D., 512 Prospect.
Simpson, A. J., 2618 Broadway.
Sipher, J. N., 76 Euclid.
Skeel, R. E., 1160 Pearl.
Smith, C. W., 122 Euclid.
Smith, D. B., Case Bldg.
Smith, G. S., 122 Euclid.
Snow, Chas. A., Pearl cor. Archwood.
Snow, L. B., 122 Euclid.
Snow, Minabel, 143 Clinton.
Sollman, T., W. R. U. Med. Coll.
Spence, H. L. 1160 E. Madison.
Spenzer, J. G., Rose Bldg.
Spurney, A. F., 864 Woodland.
Steiner, A., 766 Woodland.
Stepp, M., 7 Minnesota.
Stern, Walter G., 516 Rose Bldg.
Steuer, D. B., 465 St. Clair.
Steuer, J. C., 3 Woodland.
Stevenson, G. W., 180 Oakdale.

Stewart, G. N., W. R. U. Med. Coll.
Stoskopf, Geo., 645 Jennings.
Stotter, J., Rose Bldg.
Stovering, F. A., 334 Pearl.
Straight, H. S., 321 Hickox Bldg.
Stuart, C. C., 408 Jennings.
Sunkle, R. H., Pearl & Clark.
Sykora, J., 1449 Broadway.
Taylor, F. C., 128 Franklin.
Thornburg, H. T., 477 Prospect.
Thomas, J. J., 156 Crawford Rd.
Thomas, O. T., 85 Edgewood.
Towslee, L. G., 407 Osborne Bldg.
Tuckerman, L. B., 298 Central.
Upson, G. D., 302 Hickox Bldg.
Upson, H. S., 514 New England Bldg.
Vincent, H. D., 499 Pearl.
Wagner, H. G., Rose Bldg.
Warner, W. C., 739 Hough.
Watson, G. N., 1875 Pearl.
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Weideman, Ethel M., Detroit st. and Highland ave.
Welty, C. F., The Osborne.
White, D. K., Osborne Bldg.
Wier, Wm. H., Lakeside Hospital.
Williams, Charles D., Lakeside Hospital.
Williams, T. B., 145 Quincy.
Wirt, W. E., 477 Prospect.
Wood, W. H., 526 Rose Bldg.
Woodford, E. W., 737 Detroit.
Wooldridge, C. W., 933½ Woodland.
Yarian, N. C., 1131 Detroit.

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Brant, A. C., Canton.
Brashear, B. B., Atlantic City, N. J.
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Bunce, W. C., Oberlin.
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Carpenter, E. G., Columbus.
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Cleaver, J. V., Akron.
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Cotton, C. E., Black Mountain, N. C.
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Craig, J. Harvey, Mansfield.
Cushing, C. H., Elyria.
Dickson, J. A., Ashtabula.
Eldridge, F. A., Berlin Heights.
Engleby, F. E., Vermillion.
Everhard, N. S., Wadsworth.
Falor, O. N., North Baltimore.
Feister, H. A., Jr., Newton Falls.
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Fraunfelter, Jas., Canton.
Gamble, R. V., New London.
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Gardner, J. F., West Brookfield.
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Gill, G., N. Ridgeville.
Glass, G. F., Collamer.
Goodwin, E. M., Glenville.
Gregory, Wm. M., Berea.
Gunsolly, W. N., Collinwood.
Hall, H. L., North Amherst.
Handler, S., 670 N. St. Paul, Rochester, N. Y.
Hanna D., Oberlin.
Hannum, E. S., Mantua Station.
Hart, Wm. E., Elyria.
Hawley, E. N., Norwalk.
Haynes, J. T., Sandusky.
Hiddleson, C. S., Atwater.
Hill, E. W., Glenville.
Hine, G. W., Berlin Heights.
Hobson, J. F., Lakewood.
Hoover, D. E., Warren.
Hopkins, A. W., Ashtabula.
Humphry, C. M., Akron.
Hutton, C. F., Minerva.
Hyde, A. F., Shelby.
Ingersoll, A. J., Mentor.

Jacobs, H. H., Akron.
Jameson, G. C., Oberlin.
Johnson, Wm. H., Collins.
Jones, Dallas K., Canal Fulton.
Jones, D. J., Lisbon.
Kinnaman, R. C., Ashland.
Lanterman, G. S., Bellevue.
Lathrop, G. C., Dover.
Leet, W. H., Conneaut.
Leitch, A. J., Niles.
Leonard, F. E., Oberlin.
Leonard, W. W., Akron.
Leroy, B. R., Chagrin Falls.
Lichty, M. J., Alliance.
Linden, W. E., South Brooklyn.
Loney, D. W., Norwalk.
Love, M. J., Bloomingville.
Lowe, J. W., Mentor.
Manley, O. T., Garrettsville.
Maynard, O. T., Elyria.
McConkey, W. J., Canton.
McQuiston, H., 655 N. Fairoaks ave., Pasadena, Cal.
McVeigh, J. A., Detroit, Mich.
Merriman, D. J., Painesville.
Miller, M. F., Wadsworth.
Miner, A. G., Niles.
Myers, Elmer G., Canton.
Myers, I. A., Shelby.
Noble, C. D., Oberlin.
Oakes, I. N., N. Ridgeville.
Ohlmacher, A. P., Chicago, Ill.
Oviatt, W. H., Canal Dover.
Page, H. M., Hiram.
Post, S. B., Canton.
Power, H. W., Amherst.
Rankin, J. C., Akron.
Reynolds, R. D., Green Springs.
Rogers, J. H., Louisville.
Rhu, Aug., Marion.
Russell, John E., Mt. Vernon.
Sabin, T. M., Warren.
Schilling, Chas. E., Canton.
Schuffell, H. M., Canton.
Searl, W. A., Cuyahoga Falls.
Seidell, R. R., Bedford.
Shane, G. A., Waynesburgh.
Smith, F. K., Warren.
Smith, W. H., Akron.
Smith, J. T., Collinwood.
Snyder, G. N., La Grange.
Stall, A. A., Barberton.
Stamm, M., Fremont.
Starr, G. L., Hudson.
Stevenson, M., Akron.
Stoll, C. W., Dover.
Tanner, C. H., Willoughby.
Tidball, A. H., Garrettsville.
Todd, Geo. M., Akron.
Tressel, J. H., Alliance.
Tripp, I. A., Nottingham.
Tuttle, Carl, Berlin Heights.
Upson, F. W., Conneaut.
Vance, Allen H., Springfield.
Wagoner, S. S., Johnson.
Walker, A. B., Canton.
Ward, C. S., Warren.
Webster, A. M., Lorain.
Webster, S. T., South Brooklyn.
Weedman, C., Nova.
Wenner, H. L., Tiffin.
Wheattey, Wm. E., S. Lorain.
Whelan, R. E., Youngstown.
White, W. W., Ravenna.
Williams, C. C., Niles.
Wood, J. S., Collinwood.
Woodward, R. M., M. H. S. Washington, D. C.
Young, Alfred H., Wash., D. C.
Young, D. H., Chicago, O.
Zimmerman, H. O., Youngstown.

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Auxiliary since 1879 **Annual Meeting in May**

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E. Briggs.....Secretary.
N. B. Van Winkle.....Treasurer.

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Austin, G. M., Wilmington.
Briggs, E., Wilmington.
Conrad, G. M., New Vienna.
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Hale, D. B., Wilmington.
Lightner, Frank, Sabina.
Lightner, S. B., Sabina.
McKechnie, J. B., Cincinnati.
Mory, D. B., Sr., Wilmington.
Mory, D. B., Jr., Wilmington.
Moon, A. B., Wilmington.
Quinn, A. T., Wilmington.
Quinn, T. C., New Vienna.
Savage, T. J., Bowersville.
Shreeves, Elizabeth, Wilmington.
Smith, S., Lumberton.
Snook, C. W., Clarksville.
Telfair, G. M., Bloomington.
Tribett, C. A., Westboro.
Trimble, R. T., New Vienna.
Van Winkle, N. B., Blanchester.
Whistler, H., New Antioch.
Wilkinson, M., Sabina.
Wire, G. W., Wilmington.
Ward, Chas., Clarksville.

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Blackburn, Marinda E.
Blake, Francis W.
Bleile, Albert M.
Bonnet, Andrew O.
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Burgoyne, John A.
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Carter, Clarence C.
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Clouse, George M.
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Coleman, Nathaniel R.
Collison, Frank J.
Combs, Rebecca V.
Cooper, Albert.
Cooperrider, Chas. A.
Custer, Harry J.
Darby, Frank H.
Davenport, Albert B.
Dennis, Charles D.
Deuschle, Wm. D.
Dick, Wm. L.
Dixon, Myrwood T.
Dumm, Sebastian C.
Dunham, John Dudley
Dunham, John M.
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Edmiston, Wm. E.
Emerick, Edson J.
Evans, Arthur E.
Evans, T. A.
Fisher, Herbert H.
Fraker, Harvey C.
Frame, John A.
Frankenberg, Otto.
Fullerton, Erskine B.
Giffin, Schuyler O.
Gilliam, D. Todd
Gilliam, Earl M.
Gordon, John L.
Griffin, Albert E.
Hamilton, Chas. S.
Hamilton, Wm. D.
Harris, Herman L.
Hatton, Edgar M.
Hendrixson, Hugh.
Hendrixson, Ola S.
Herbst, Edward.
Hoover, Thomas C.
Johnson, Alice M.
Jones, Harry S.

Jones, J. F.
Kahn, Louis.
Kinsell, Denman R.
Kinsman, David N.
Lawrence, Florus F.
Lawrence, James C.
Leech, Sherman.
Linhart, Christopher P.
Lippitt, Benj. F.
Lippitt, Timothy M.
Loving Starling.
McCafferty, Frank
McClure, James A.
Magruder, Jesse J.
Means, Chas. S.
Merrick, J. N.
Moninger, James H.
Moore, Dickson L.
Moore, Henry M. W.
Murphy, Joseph A.
Nash, Wm. H. H.
Norris, King A.
Nessley, George B.
Pagels, Geo. H.
Park, James A.
Persinger, Carey
Platter, Herbert M.
Probst, Chas O.
Phillips, James M.
Rankin, Theodore W.
Ranchous, Walter E. M.
Rauschkolb, John
Rauschkolb, C. T.
Rogers, Wm. K.
Ross, Clarence C.
Schueller, Edwin W.
Shepard, Chas. J.
Spohr, Carl L.
Stein, Geo. S.
Steinfeld, Alexander M.
Stillman, Frank L.
Stockton, George
Stout, Jacob A.
Tarbill, Robert C.
Taylor, Clovis M.
Taylor, Sterling B.
Timberman, Andrew
Turner, Chas. E.
Turney, Chas. F.
Tyler, James A.
Upham, John H. J.
Van Fossen, Jesse A.
Wardlow, Yeatman
Warner, Frank
Waters, George M.
Whitaker, Hervey W.
Whitehead, Howard
Whitten, Wm. F.
Wilcox, Starling S.
Williard, Geo. W.
Wilson, Edwin Frazer
Wilson, Edward J.
Wilson, Ida M.
Winders, Frank
Wissinger, Thomas K.
Wolfe, Albertus C.
Woodruff, LaFayette
Wren, Wm. G.
Youmans, Thomas G.

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Aldrich, Charles J., 612 Prospect.
Allen, Dudley P., 278 Prospect.
Allen, Fred Y., 637 Central.
Ashmun, George C., 794 Republic
Baker, Albert R., 122 Euclid.
Baker, Cornelius, 553 Kinsman.
Becker, H. A., 1200 Pearl.
Belt, J. H., 1434 Willson.
Biggar, H. F. Jr., 166 Euclid.
Bishop, H. F., 1051 Superior.

Biskind, Israel J., 198 Woodland.
Boggs, Jessie, 1257 Euclid.
Brashear, Basil B., Atlantic City, N. J.
Brockett, Andrew J., 32 Hawthorne.
Bruner, W. E., 514 New England Bldg.
Bunts, Frank E., 204 The Osborn.
Burdick, Halbert J., 519 Cedar
Calhoun, S. F., 69 Crawford Rd.
Campbell, Oscar B., 993 Cedar.
Carlisle, Irwin C., Glenville, O.
Carter, Edward P., 8 Hayward.
Chadwick, Leroy S., 1824 Euclid.
Clark, William, 778 Central.
Coates, B. O., 29 Euclid.
Cogan, J. E., 1117 Superior.
Corlett, Wm. T., 553 Euclid.
Crile, Geo. W., 204 The Osborn.
Crumrine, Henry C., 5 Chestnut.
Cushing, Edward F., 1160 Euclid.
Dutton, Charles F., 122 Euclid.
Fitzgerald, Guy H., 275 Prospect.
Foote, C. G., 607 The Osborn.
Fraser, John M., 581 Erie.
Friedrich, Martin, 516 Rose Bldg.
Gentsch, Charles, 167 Franklin.
Hamann, C. A., 744 Prospect.
Handerson, Henry E., 444 Dunham.
Hanson, David S., 1419 Broadway.
Hart, Albert G., 102 Jennings.
Herrick, F. C., 367 Erie.
Herrick, Henry B., 2531 Euclid.
Hickin, F. W., 350 Jennings.
Hintzelman, Charles, 86 Randall.
Hobson, John F., Lakewood, O.
Holliday, Benjamin W., 520 Prospect.
Holliday, W. W., 2588 Broadway.
James, William S., 1519½ Lorain.
Jenks, William O., Nottingham, Ohio.
Jones, John D., 1635 Harvard.
Kaestlen, Samuel E., 50 McLean.
Kelley, Samuel W., 1150 Superior.
Kerruish, Miriam G., 1014 Euclid.
Knowlton, William A., 530 Jennings.
Kofron, J. V., 1560 Broadway.
Krause, Bernhard, 1465 Wilson.
Large, S. H., 1012 New England Bldg.
Lauder, E. S., 603 The Osborn.
Lee, Howard J., 71 Tilden.
Leick, George F., 503 Prospect.
Lenker, John N., 603 The Osborn.
Lincoln, William R., 207 The Osborn.
Linden, W. E., South Brooklyn, Ohio.
Lower, William E., 204 The Osborn.
Lowman, John H., 441 Prospect.
Lueke, A. W., 416 Rose Bldg.
Lueke, Ernest A., 416 Rose Bldg.
McGee, John B., 1405 Woodland.
McMichael, J. C., Glenville, O.
McNamara, A. J., 500 Permanent Bldg.
McQuiston, Henry, 19 Walker.
Martin, Thomas C., 1077 Prospect.
Marvin, Albert H., 493 Colonial Arcade.
Merriam, W. H., Osborn Bldg.
Milliken, Benjamin L., 278 Prospect.
Moorehouse, George W., 39 Cutler.
Morton, Fayette J., 959 Lorain.
Norton, Francis B., 150 Kennard.
Ormsby, H. B., 249 Central.
Oswald, Benjamin F., 2010 Detroit.
Parker, Charles B., 425 Euclid.
Payne, Frank A., 616 Willson.
Perrier, John, 1014 Willson.
Peskind, Arnold, 1354 Willson.
Powell, Hunter H., 467 Prospect.
Propper, I. J., 368 Woodland.
Reich, Leon, 550 Woodland.
Robb, Hunter, 1342 Euclid.
Rogers, Henry W., 128 Franklin.
Russell, George C., 421 Williamson Bldg.
Sager, B. E., 243 Crawford Road.
Sawyer, John P., 122 Euclid.
Sawyer, Pascal H., 54 Streator.
Schnee, R. G., 2004 Superior.
Scott, N. Stone, 531 Prospect.
Shackleton, W. E., 607 The Osborn.
Sherman, Harris G., 29 Euclid.
Simons, Frank D., 512 Prospect.
Sipher, J. N., 76 Euclid.
Skeel, Roland E., 1156 Pearl.

Skeel, Arthur J., 1495 Pearl.
Smigel, Peter S., 2086 Broadway.
Smith, Charles W., 122 Euclid.
Smith, George Seeley, 122 Euclid.
Smith, J. R., 396 Jennings.
Snow, Lexor B., 158 Lincoln.
Somerville, George H., 2549 Broadway.
Stepp, M. D., 7 Minnesota.
Stern, Walter G., 516 Rose Bldg.
Stevenson, George W., 1489 Woodland.
Stillman, George B., 1318 Cedar.
Stuart, Charles C., 408 Jennings.
Sykora, Joseph, 1449 Broadway.
Tuckerman, L. B., 298 Central.
Weber, Wm. C., 211 The Osborn.
Wheatley, Wm. E., Lorain, O.
White, D. K., 204 The Osborn.
Yarian, Norman C., 1135 Detroit.

DARKE COUNTY MEDICAL SOCIETY

Philip Dickes.....President.
Donovan Robeson.....Vicepresident.
S. G. Sewell.....Secretary.
S. A. Hawes.....Treasurer.

MEMBERS

Anderson, L. C., Greenville.
Baker, Charles, German.
Ballinger, J. B., Webster.
Corwin, M. M., Savona.
DeFord, J. M., Hagerman.
Detamore, J. E., Union City, Ind.
Dickes, Philip, Greenville.
Dorwin, L. H., Gettysburg.
Fitzgerald, W. T., Greenville.
Ford, R., Greenville.
Garbold, A. A., German.
Guntrum, W. E., Greenville.
Guttermuth, Wm. C., Versailles.
Hartzell, J. D., North Star.
Hawes, I. H., Arcanum.
Hawes, S. A., Arcanum.
Haworth, A. H., New Madison.
Hecker, E. A., New Madison.
Husted, E. G., Beamsville.
Husted, J. L., Woodington.
Kerlin, J. D., Greenville.
Layer, W. A., Hill Grove.
Lynch, William, Greenville.
Meek, A. W., Hollandsburg.
North, T. Leroy, German.
Rike, Wm. H., Versailles.
Robeson, Donovan, Greenville.
Rush, A. W., Greenville.
Sewell, S. G., Greenville.
Silver, H. R., Gordon.
Snorf, H. A., Ansonia.
Stephens, Charles I., Ansonia.

DAYTON ACADEMY OF MEDICINE

R. S. Gaugler.....President.
T. E. Marshall.....Vicepresident.
A. H. Lane.....Secretary.
Geo. D. Gohn.....Treasurer.

MEMBERS

Bates, A. E.
Bohlender, E. E.
Breidenbach, C. H.
Burns, Wm. S.
Chrisman, C.
Collins, O. H.
Dunham, A. J.
Ellis, S. B.
Gaugler, R. S.
Gohn, George
Goldberg, S. J.
Griep, O. C.
Hahne, H. A.
Haning, H. C.
Hatcher, H. H.
Huston, E. M.
Keelor, J.
Lane, A. H.
Lanz, George
McDonald, E. A.

Marshall. T. E.
Martin, George
Moore, J. W.
Nohr, Robt.
Pennywitt, R. C.
Prather, W. F.
Schuster, Geo. R.
Stewart, E. A.
Thompson, F. A.
Weaver, Fred
Werthner, J.

DEFIANCE COUNTY MEDICAL SOCIETY

R. W. Finch.....President.
W. S. Powell.....Vicepresident.
Katherine Hoover.....Secretary.

MEMBERS

Aldrich, P. H., Defiance.
Belau, Nettie N., Defiance.
Blue, J. N., Ayersville.
Cameron, J. M., Jewell.
Coy, M. C., Stryker.
Denman, J. K., The Bend.
Finch, R. W., Defiance.
Hoover, Katherine, Defiance.
Huffman, G. W., Defiance.
Kinmont, T. C., Hicksville.
Leever, J. L., Defiance.
Lindersmith, H. C., Sherwood.
Powell, W. S., Defiance.
Replogle, M. V., Evansport.
Reynolds, J. J., Defiance.
Stevens, M. B., Defiance.
Westrick, J. D., Defiance.

DELAWARE COUNTY MEDICAL SOCIETY

Auxiliary since 1898

W. B. Hedges.....President.
W. M. T. S. Simms.....Vicepresident.
J. B. Woodworth.....Secretary.
C. W. Chidester..... Treasurer.
W. H. Woodworth.....Librarian.

MEMBERS

Andrus, H. F., Constantia.
Bonner, O. W., Delaware.
Bessie, Henry, Delaware.
Buck, A. H., Delaware.
Chidester, C. W., Delaware.
Cowles, G. E., Ostrander.
Crickard, W. F., Delaware.
Fay, D. C., Ostrander.
Fowler, W. S., Delaware.
Gage, F. L., Delaware.
Hedges, W. B., Delaware.
Hughes, D. E., Delaware.
James, J. K., Delaware.
McCann, J., Delaware.
McIntyre, Wm., Warrensburg.
Murray, F. M., Delaware.
Ropp, W. T., Delaware.
Semans, E. M., Delaware.
Simms, W. M. T. S., Lewis Center.
Semans, W. M., Delaware.
Stickney, F. A., Kilbourne.
Talley, C. E., Powell.
Westbrook, A. E., Ashley.
Willey, A. J., Delaware.
Willey, P. W., Lewis Center.
Woodworth, J. B., Delaware.
Woodworth, W. H., Delaware.

EASTERN OHIO MEDICAL ASSOCIATION

S. B. McGavran, Cadiz.....President.
W. S. Spence, Germano.....First Vicepresident.
A. B. Holland, Wellsville.....Second Vicepresident.
J. A. Hobson, Flushing.....Third Vicepresident.
J. F. Whittaker, Bloomingdale.....Fourth Vicepresident.
J. C. M. Floyd, Steubenville.....General Secretary.
J. F. Purviance, Steubenville.....Recording Secretary.

MEMBERS.

Andrews, O. P., East Liverpool.
Andrews, R., East Liverpool.
Blazer, H. E., Salineville.
Bailey, W. N., East Liverpool.
Bozman, H. E., New Alexandria.
Barkhurst, S. O., Steubenville.
Berry, J. E., Alledonia.
Collins, J. W., Toronto.
Cooper, J. W., Bellaire.
Calhoun, W. M., East Liverpool.
Clark, W. R., East Liverpool.
Carroll, W. L., Toronto.
Cole, C. C., Bridgeport.
Campbell, J. S., Wellsville.
Clark, J. A., Glencoe.
Diven, A. W., Martin's Ferry.
Elliott, A. A., Steubenville.
Erskine, E. D., Steubenville.
England, W. L., Jewett.
Elliott, Jas. T., East Liverpool.
Floyd, J. C. M., Steubenville.
Fisher, B. H., Steubenville.
Foster, Ira C., Wintersville.
Gregg, M., Smithfield.
Geisey, E. R., Toronto.
Hobbs, W. A., East Liverpool.
Howells, W. O., Bridgeport.
Hobson, J. A., Flushing.
Holland, A. B., Wellsville.
Hoge, W. D., Portland Station.
Hewettson, A. H., St. Clairsville.
Hawthorne, E. S., Mt. Pleasant.
Heinlin, A. J., Bridgeport.
Ikert, George P., East Liverpool.
Korner, A. H., Woodsfield.
Kerns, J. T. W., Bellaire.
Laughlin, R., Steubenville.
Lindsay, J. A., Salineville.
Lemmon, L. A., Calcutta.
McGlenn, J. A., Mt. Pleasant.
McColough, J. A., Steubenville.
McFarland, W. S., Wellsville.
McClellan, J. S., Bellaire.
McGavran, S. B., Cadiz.
McCoy, J. J., Steubenville.
Martin, J. W., Unionport.
Marshall, R. J., East Liverpool.
Marquis, Tom. B., Lisbon.
Miller, J. E., Cadiz.
Minor, H. C., Toronto.
Morrison, Paul, Martin's Ferry.
Nelson, H. W., Steubenville.
O'Connell, W. J., Mingo Junction.
Ong, A. R., Martin's Ferry.
Oliver, J. F., Irondale.
Pearce, E., Steubenville.
Purviance, J. F., Steubenville.
Podlewski, S. J., Steubenville.
Park, B. R., Wellsville.
Price, L., Toronto.
Riggs, E. N., Powhattan.
Rea, E. H., Irondale.
Spence, W. S., Germano.
Stokes, W. H., Toronto.
Saint, J. N., East Liverpool.
Snyder, D. J., Scio.
Thompson, W. E., St. Clairsville.
Wood, W. H., Smithfield.
West, J. P., Bellaire.
Whittaker, J. F., Bloomingdale.
Williams, B. O., Martin's Ferry.
Watt, J. M., Toronto.
Young, J. P., Empire.

ERIE COUNTY MEDICAL SOCIETY

Auxiliary since 1877 Annual Meeting in April

Charles Graefe.....President.
M. J. Love.....Vicepresident.
E. Stanley .....Vicepresident.
H. C. Schoepfle.....Secretary.

MEMBERS

Bigelow, G. J., Sandusky.
Buckingham, E. V., Chicago Junction.
Busch, Wm. H., Sandusky.
Cook, A. F., Sandusky.
Davis, Carrie Chase.
De La Barre, Paul, Port Clinton.
Engleby, F. E., Vermillion.
Goodsell, E. J., Norwalk.
Graefe, Chas., Sandusky.
Graefe, Wm., Sandusky.
Haynes, J. T., Soldiers' Home.
Heiter, Karl, Sandusky.
Hessell, A. A., Put-in-Bay.
Hyde, A. G., Soldiers' Home
Kreider, C. F., Monroeville.
Love, M. J., Bloomingville.
Merz, Chas. H., Sandusky.
Odenbaugh, J.
Osborn, A. L., Norwalk.
Peterson, H. D., Kelley's Island.
Quigley, R. L., Vermillion.
Rauz, W. E., Soldiers' Home
Schoepfle, H. C., Sandusky.
Stanley, Ellwood, Sandusky.
Story, Wm., Castalia.
Sykes, R. D., Chicago Junction.
Waters, R. L., Lakeside.
Woessner, N. E., Huron.
Young, D. H., Wakeman.

GALLIA COUNTY MEDICAL SOCIETY

Auxiliary since 1895

Jehu Eakins, Patriot.....President.
L. B. Turner, Bidwell.....Secretary.

MEMBERS

Allen, H. S., O. H. E.
Allison, T. J., Wales.
Alcorn, E. G., Gallipolis.
Alcorn, J. B., Gallipolis.
Bean, L. C., Gallipolis.
Cherrington, J. S., Pine Grove.
Clark, A. T., Vinton.
Cromley, F. A., Gallipolis.
Coleman, Wm. K., O. H. E.
Chadburn, T. L., O. H. E.
Duston, J. B., Bidwell.
Ewing, G. K., Ewington.
Ely, C. W., Cheshire.
Eakins, Jehu, Patriot.
Gerlach, H. P. Crown City.
Howell, W. E., Rio Grande.
Janson, J. T., Gallipolis.
Jacobs, R. D., Vinton.
Jordan, S. S., Gallipolis.
Lupton, Ella G., Gallipolis.
Miller, William, Thurman.
Ohlmacher, A. P., O. H. E.
O'Connell, Richard, O. H. E.
Parker, E. W., Gallipolis.
Parker, C. G., Gallipolis.
Parker, C. B., Gallipolis.
Rife, C. A., Kyger.
Shaffer, D. R., Peniel.
Strausbaugh, J. C., Vinton.
Shaw, H. W., Gallipolis.
Stewart, R. Scott, Rio Grande.
Turner, L. B., Bidwell.
Williams, S. W., Gallipolis.

GREENE COUNTY MEDICAL SOCIETY.

Anxiliary since 1888 — Annual Meeting in June

A. C. Messenger.....President.
F. M. Kent.....Vicepresident.
M. I. Marsh.....Secretary.
D. E. Spahr.....Treasurer.

MEMBERS

Anderson, George, Alpha.
Baldwin, J. W., Xenia.
Brundage, A. H., Xenia.
Brundage, L. H., Xenia.
Donaldson, Frank, Philippine Is.
Finley, W. H., Xenia.
Galloway, C. M., Xenia.
Galloway, W. A., Xenia.
Harris, J. H., Yellow Springs.
Harris, J. M., Yellow Springs.
Hendrixson, O. P., Yellow Sp'gs.
Humphrey, W. H., Yellow Sp'gs.
Jones, L. M., Jamestown.
Kent, F. M., Spring Valley.
Lackey, J. C., Jamestown.
Lindsay, F. T., Xenia.
Lorimer, Hugh F., Jamestown.
Marquart, O. M., Osborn.
Marsh, M. I., Cedarville.
McClellen, B. R., Xenia.
McClellen, H. R., Xenia.
Messenger, A. C., Xenia.
Murrel, Grant, New Burlington.
Ogan, F. W., Jamestown.
Rouse, W. L., Paintersville.
Savage, Thos., Bowersville.
Smith, R. W., Spring Valley.
Spahr, D. E., Clifton.
Stewart, J. O., Cedarville.
Treherne, J. M., Zimmerman.
Wilson, S. S., Xenia.
Wright, C. F., Port William.

HANCOCK COUNTY MEDICAL SOCIETY

J. M. Firmin.....President.
N. L. McLachlan.....Vicepresident.
Don C. Hughes.....Secretary and Treasurer.
T. S. Wilson.....Assistant Secretary.

MEMBERS

Baker, J. P., Findlay.
Brayton, W. G., Fostoria.
Entrekin, F. B., Findlay.
Ewing, M. J., Findlay.
Firmin, F. W., Findlay.
Firmin, J. M., Findlay.
Herrington, S. G., Rawson.
Hersh, E. G., McComb.
Howell, J. A., McComb.
Hughes, Don C., Findlay.
Hurd, A., Findlay.
Kimmell, J. A., Findlay.
Martin, J. C., Findlay.
McLachlan, N. L., Findlay.
McLeod, J. R., Findlay.
Metzler, W. M., Vanlue.
Wilson, T. S., Findlay.
Yost, W. N., Findlay.
Zopfi, W. J., Findlay.

HEMPSTEAD MEMORIAL ACADEMY OF MEDICINE

Anxiliary since 1885 — Annual Meeting in May

A. D. Berndt.....President.
M. S. Pixley..... Secretary.
S. S. Halderman.....Treasurer.

MEMBERS

Allard, L. D., Portsmouth.
Andre, O. C., Waverly.
Berndt, A. D., Portsmouth.
Campbell, A. D., Portsmouth.
Chabot, G. W., Otway.
Cotton, D. B., Portsmouth.
Cotton, Mary, Portsmouth.
Edwards, F. M., Portsmouth.

Foster, E. M., Portsmouth.
Frizella, J. S., Buena Vista.
Fulton, C. C., Portsmouth.
Gahm, J. L. Jackson.
Gordon, John F., Otway.
Halderman, S. S., Portsmouth.
Hall, Loren, Portsmouth.
Kline, P. J., Portsmouth.
Lottridge, W. M., Portsmouth.
Moore, A., Portsmouth.
McKerrichan, S. B., Portsmouth.
Morgan, J. F., Jackson.
Nye, Jane, Portsmouth.
Osborne, G. W., Portsmouth.
Pixley, M. S., Portsmouth.
Rardin, J. S., Portsmouth.
Ray, J. B. Jr., Portsmouth.
Sellards, A. G., Portsmouth.
Sellards, Howard C., Portsmouth.
Smith, W. W., Portsmouth.
Sulzur, Gustavus C., Portsmouth.
Taylor, James L., Wheelersburg.
Teachnor, Wells A., Sciotoville.
Titus, A., Portsmouth.
Vernier, L., Portsmouth.
Warwick, J. B., Lucasville.
Warwick, C. M., Lucasville.
Williams, J. B., Jackson.
Williams, F. H., Portsmouth.
Wiseman, J. S., Powellsville.
Williamson, Joseph, Scotioville.

HIGHLAND COUNTY MEDICAL SOCIETY

W. J. Srofe, Lynchburg.....President.
T. W. Roberds, Bell.....Treasurer.
Lockhart Nelson, Hillsboro.....Secretary.

MEMBERS

Beam, A. H., Hillsboro.
Beeson, H. A., Leesburg.
Brown, H. M., Hillsboro.
Chaney, S. F., Pricetown.
Conard, G. R., New Vienna.
Cornetet, E. W., Piketon.
Dunlap, R. S., Greenfield.
Duvall, T. W., Lynchburg.
Gibson, Jas. T., Lynchburg.
Glasgow, J. A., Bell.
Glenn, W. W., Hillsboro.
Granger, B. D., Hillsboro.
Granger, F. M., Russells.
Holmes, B. F., Hillsboro.
Holmes, R. E., Leesburg.
Hook, O. C., Marshall.
Hopkins, O. A., Martinsville.
House, L. F., Sinking Springs.
Jones, Robt. J., Greenfield.
Judkin, E. S., Highland.
Lafferty, N. B., Hillsboro.
Larkin, J. C., Hillsboro.
Leatherman, J. W., New Market.
Love, E. W., Fayettsville.
Matthews, J. W., Buford.
McBride, D. N., Rainsboro.
McCann, F. B., Greenfield.
McGarraugh, T. S., Greenfield.
McNulty, J. H., East Monroe.
Nelson, Lockhart, Hillsboro.
Patterson, W. S., Hillsboro.
Quinn, Thos. C., New Vienna.
Roberds, T. W., Bell.
Russ, H. A., Hillsboro.
Scott, W. T., Martinsville.
Smith, C. B., Hillsboro.
Srofe, W. J., Lynchburg.
Thomas, F. M., Samantha.
Trimble, R. T., New Vienna.
Van Winkle, N. B., Blanchester.
Wilson, Frank L., Greenfield.
Wilson, W. H., Jr., Greenfield.

HOLMES COUNTY MEDICAL SOCIETY

F. J. Guittard.....President.
D. S. Olmstead.....Secretary.

MEMBERS

Bingham, Jno. G., Millersburg.
Carson, F. D., Benton.
Crump, A. A. Jr., Millersburg.
Crump, A. A. Sr., Millersburg.
Cole, A. T., Millersburg.
Elder, W. T., Nashville.
Guittard, F. J., New Bedford.
Hoyer, A. M., Nashville.

Jones, A. L., Glenmont.
Jones, H. S., Clarks.
Jones, Jno. M., Glenmont.
Negelspach, Otto, Holmesville.
Olmstead, D. S., Millersburg.
Pomerene, Lister, Berlin.
Shalliol, Peter, Winesburg.
Stuckey, A. J., Walnut Creek.
Whitmar, J. E., Charms.
Wilson, T. R., Clarks.
Wise, S. P., Millersburg.

JACKSON COUNTY MEDICAL SOCIETY

J. F. Morgan.....President.
J. J. McClung.....Vicepresident.
W. L. Kinnison.....Treasurer.
D. B. Warren.....Secretary.

MEMBERS

Barrett, S. P., Byer.
Dando, E. T., Wellston.
Darling, G. W., Wellston.
Davis, D. W., Berlin Cross R'ds.
Drake, T. J., Leo.
Evans, W. R., Jackson.
Ewing, G. A., Jackson.
Gahm, J. L., Jackson.
Harbarger, G. H., Coalton.
Harbarger, J. W., Glen Roy.
Harrison, C. B., Wellston.
Hughes, E. E., Oak Hill.
Hunter, J. S., Jackson.
Jacobs, Philander, Jackson.
Jones, D. E., Glen Roy.
Jones, E. J., Oak Hill.
Jones, G. E., Oak Hill.
Kinnison, W. L., Limerick.
Kitchen, B. F., Wellston.
McClung, J. J., Jackson.
McLaughlin, Oscar, Rempel.
McLure, G. B., Rockey Hill.
Morgan, J. F., Jackson.
Plummer, T. E., Coalton.
Ray, A. G., Byer.
Ray, E. S., Hamden Junction.
Ray, J. H., Coalton.
Ray, Worth, Coalton.
Rogers, T. C., Wellston.
Shaffer, D. R., Peniel.
Sylvester, J. E., Wellston.
Warren, D. B., Wellston.
Williams, W. E., Jackson.
Woodrow, O. M., Wellston.

JEFFERSON COUNTY MEDICAL SOCIETY

B. H. Fisher.....President.
A. A. Elliott.....Secretary.

MEMBERS

Blackburn, A. M., Steubenville.
Elliott, A. A., Steubenville.
Fisher, B. H., Steubenville.
Floyd, J. C. M., Steubenville.
Gregg, Melvin, Knoxville.
Nelson, H. H., Steubenville.
Pearce, E., Steubenville.
Whittaker, J. F., Bloomingdale.
Wood, W. H., Smithfield.

LORAIN COUNTY MEDICAL SOCIETY

Wm. C. Bunce, Oberlin.....President.
E. Cameron, Lorain.....Vicepresident.
A. M. Webster, Lorain.....Secretary.
F. Young, Lorain.....Treasurer and Librarian.

MEMBERS

Appleby, A. E., Lorain.
Baker, C. D., Lorain.
Beck, W. F., Vermillion.
Brown, E. O. S., Lorain.
Bunce, Wm. C., Oberlin.
Cameron, E., Lorain.
Campbell, A. L. D., N. Amherst.
Cox, S. S., Lorain.
Cushing, C. F., Elyria.
Denmark, A. G., Lorain.
Everett, A. B., Oberlin.
Foster, Washington, N. Amherst.
Garver, A. N., Lorain.
Gillmore, C. F., Lorain.
Gregg, F. B., Wellington.
Hoffman, W. W., Lorain.
Hug, E. V., Lorain.
Madden, J. F., Elyria.
Moffett, C. C., Lorain.
Monosmith, O. B., Lorain.
Robinson, H. P. H., Lorain.
Thomas, John B., Huntington.
Thompson, J. M., Lorain.
Webster, A. M., Lorain.
Wheatley, W. E., Lorain.
Young, F., Lorain.

LUCAS COUNTY MEDICAL SOCIETY

G. F. Suker.....President.
W. D. Stewart.....Vicepresident.
W. W. Grube.....Secretary.
H. E. Smead.....Treasurer.

MEMBERS

Aftel, G.
Alter, F. A.
Bainbridge, Kate.
Baird, J. L.
Bamberger, H.
Barlow, E. B.
Becker, B.
Bethards, P. E.
Betts, Charles.
Bormann, A.
Bowman, D. E.
Bowman, M. H.
Brewer, L. A.
Brunthaver, F. L.
Burke, W. F.
Clark, D. J.
Clark, J. F.
Clark, Lucien.
Cook, U. A.
Covert, Harriet.
Dice, W. G.
Dickey, W. A.
Dolloway, L. M.
Donnelly, James.
Donnelly, Peter.
Drown, L. M.
Duncan, J. A.
Emery, Geo.
Emery, W. H.
Faber, C. A.
Fisher, W. H.
Foster, S. D.
Gillette, W. J.
Girardot, A. J.
Gorsuch, G. A.
Green, H. L.
Greenfield, E. J.
Grube, W. W.
Haag, D. E.
Hahn, H. F.
Hall, H. L.
Hamlin, G. E.
Harpster, C. M.
Heltman, E. W.
Henzler, Charles.
Hobart, A. D.
Howe, John D.
Jacobson, J.
Jerome, M.
Jones, George H.
Jones, Grace.
Jump, H. M.
Keller, J. G.
Kimbell, O. W.
Kitchen, F. A.
Kuehn, A. A.
Law, Mary.
Lockard, L. B.
Louy, Charles.
Lukens, Chas.

McVety, Albert.
Marshall, D. M.
Marten, J. W.
Mattison, J. A.
Meagley, F. F.
Miller, Louis.
Miller, C. S.
Mills, C. H.
Minton, F. P.
Munn, H. E.
Myers, P. L.
Newton, C. W.
Noble, H. E.
North, John.
Prine, Robert.
Pyle, J. S.
Rieg, Philip.
Root, A. D.
Schnetzler, J. U.
Schutt, S. C.
Smead, H. E.
Smith, Anna.
Smith, C. N.
Snyder, W. H.
Steinfeld, A. L.
Stewart, C. E.
Stewart, W. D.
Storz, C.
Strausz, P. H.
Suker, George F.
Thorn, S. S.
Tucker, E. D.
Walker, R. J.
Watson, J. L.
Wickham, William.
Wright, John A.
Young Nelson H.
Waddick, J. M.
Walker, R. S.
Woods, Elizabeth.
Wuestfeld, Ernst.

MARION COUNTY MEDICAL SOCIETY

Auxiliary since 1879. Annual meeting in January.

A. Ogan.....President.
E. O. Richardson.....Secretary.
O. W. Weeks.....Treasurer.

MEMBERS

Bowdish, R. C., Marion.
Britton, S. H., Marion.
Chisholm, H., Marion.
Crane, A. M., Marion.
Denman, W. C., Marion.
Dombaugh, R. S., Waldo.
Hamilton, L. D., Marion.
Holmes, J. T., Agosta.
King, J. I., Martel.
McMurray, Jas. W., Marion.
Martin, J. T., Marion.
Ogan, A., Marion.
Ramroth, R., Marion.
Rhu, August, Marion.
Rhu, H. S., Marion.
Richardson, E. O., Marion.
Sweney, R. L., Marion.
Uhler, H. L., Marion.
Weeks, D. O., Marion.
Weeks, O. D., Marion.

MEIGS COUNTY MEDICAL SOCIETY

L. A. Thomas.....President.
D. B. Hartinger.....First Vicepresident.
D. A. Sayre.....Second Vicepresident.
D. Sisson.....Secretary and Treasurer.

MEMBERS

Barton, T. H., Syracuse.
Bean, George, Rutland.
Crosbie, G. T., Pomeroy.
Day, H. C., Harrisonville.
Deem, S. P., Tupper's Plains.
Hartinger, D. B., Middleport.
Hartinger, D. S., Middleport.
Hoff, J. W., Pomeroy.
Holmes, A. F., Albany.
Hysell, J. H., Pomeroy.

Gribble, L. G., Pomeroy.
Miller, J. A., Pomeroy.
Petty, C. W., Hartford City, W. Va.
Pedigo, S. E. G., Marshfield.
Poindexter, Charles, Dexter.
Roush, L. F., Pomeroy.
Sayre, D. A., New Haven, W.Va.
Sisson, David, Middleport.
Stanley, A. A., Rutland.
Stobart, R. E., Pomeroy.
Swift, E. F., Reedville.
Thomas, L. A., Middleport.
Williams, Alice D., Syracuse.
Wood, O. S., Pomeroy.

MIAMI COUNTY MEDICAL SOCIETY

T. M. Wright.....President.
P. E. Cromer.....Vicepresident.
A. W. Grosvenor.....Recording Secretary.
H. H. Havens.....Corresponding Secretary.

MEMBERS

Ashton, A. S., Piqua.
Baker, John, Piqua.
Bausman, A. J., Pleasant Hill.
Bausman, S. N., Pleasant Hill.
Benson, Piqua.
Burnam, R. D., Piqua.
Campbell, A. L. De, Piqua.
Coleman, Warren, Troy.
Cromer, P. E. Piqua.
Deaton, Van S., Miami City.
Frame, A. B., Piqua.
Green, J. H., Troy.
Grosvenor, A. W., Piqua.
Hartman, S. D., Tippecanoe City.
Havens, H. H., Tippecanoe City.
Hoover, L. S., Laura.
Jennings, Gainor, West Milton.
Kendall, H., Covington.
Kessler, Wm. H., West Milton.
Kitzmiller, F. E., Piqua.
Lindenberger, L. M., Troy.
Lowe, J. H., Piqua.
McCullough, Geo., Troy.
McMains, Piqua.
Miller, A. C., Covington.
O'Ferrall, R. M., Piqua.
Pearson, H. R., West Milton.
Rhinehart, H. D., Covington.
Senour, J. G., Troy.
Shannon, R. McD., Piqua.
Shellenberger, James E., surgeon army, Philippines.
Thompson, W. R., Troy.
Tydings, O., Chicago.
Unkefer, W. N., Piqua.
Wright, T. M., Troy.

MIAMI VALLEY MEDICAL SOCIETY

Con W. Gatch, Milford.....President.
N. B. Van Winkle, Blanchester.....Vicepresident.
J. D. Wakefield, Loveland.....Secretary.
A. Morris, Goshen.....Treasurer.
Censor—Ed. Stevens, Lebanon.

MEMBERS

Anderson, F. M., Carthage.
Anderson, W. S., Newtonville.
Andrews, J. H., Goshen.
Ashburn, P. M., Cincinnati.
Asther, Geo. H., Elmwood Place.
Beckler, C. M., 805 Elm St., Cincinnati.
Beebe, B. F., 320 E. Fourth St., Cincinnati.
Beeson, H. A., Leesburg.
Belt, R. C., Milford.
Bettman, H. W., 547 W. Seventh St., Cincinnati.
Bishop, N. W., Loveland.

Blair, B. H., Lebanon.
Bonar, J. I., 238 E. Fourth St., Cincinnati.
Bonifield, C. L., 432 W. Fourth St., Cincinnati.
Boylan, J. E., 319 Broadway, Cincinnati.
Briggs, E., Wilmington.
Brown, E. M., Amelia.
Brown, H. M., 22 W. Seventh St., Cincinnati.
Brown, Joseph E., 1324 Race St., Cincinnati.
Carothers, D. A., 415 Broadway, Cincinnati.
Carmichael, W. A., Loveland.
Cline, Galen L., Perintown.
Colter, L. S., Clifton and Prospect, Cincinnati.
Combs, J. S., Owensville.
Conard, George R., New Vienna.
Couden, J. T. Morrow.
Culbertson, J. C., 317 W. Seventh St., Cincinnati.
Cullen, G. I., 714 W. Sixth St., Cincinnati.
Curry, F. C., Milford.
Evans, W. P., Miamiville.
Fisher, Herschel, Lebanon.
Fitzpatrick, T. V., 32 W. Eighth St., Cincinnati.
French, E. H., Glendale.
Frost, Frank H., Lebanon.
Gatch, Con. W., Milford.
Gillespie, Wm., 415 Broadway, Cincinnati.
Goode, Geo. H., 436 W. Seventh St., Cincinnati.
Haarlammert, Chas., Loveland.
Hall, Rufus B., 628 Elm St., Cincinnati.
Highlands, W. W. Newtown.
Hough, Chas. A., Lebanon.
Johnstone, A. W., Madisonville Road, Cincinnati.
Juettner, A. F., 1387 Ohio Ave., Cincinnati.
Juettner, Otto, 1409 Elm St., Cincinnati.
Knight, A. L., Madisonville.
Kreiger, G. L., Madisonville.
Lambright, S., South Lebanon.
Langdon, F. W., 13 E. Seventh St., Cincinnati.
Lyman, D. S., Goshen.
Macready, J. A., Monroe.
Marsh, F. O., 1616 Main St., Cincinnati.
Mitchell, T. A., Owensville.
Mitchell, E. W., Reading Road, Cincinnati.
Moore, J. W., Middletown.
Morris, A., Goshen.
Moss, W. F. Mainville.
Mounts, J. L., Morrow.
Mounts, Leonard, Morrow.
Mullen, T. J., New Richmond.
Murphy, A. D., 109 W. Eighth St., Cincinnati.
Oliver, J. C., 628 Elm St., Cincinnati.
Orr, Geo. B., 423 E. Fourth St., Cincinnati.
Prugh, George W., 2101 Eastern Ave., Cincinnati.
Quinn, T. C., New Vienna.
Reamy, Thad. A., Oak St., Cincinnati.
Reed, Chas. A. L., St. Leger Pl., Cincinnati.
Ricketts, B. Merrill, 415 Broadway, Cincinnati.
Ricketts, Edwin S., 415 Broadway, Cincinnati.
Roberts, A. C., Morrow.
Romine, Maria M., Harveysburg.
Sandoe, J. L., Pearl and Butler Sts., Cincinnati.
Scott, J. B., 1624 Western Ave., Cincinnati.
Scott, N. I., Norwood.
Scott, Wm., Loveland.
Shields, E., 2008 Forum Road, Cincinnati.
Snider, Frank, Midland.
Snook, C. W., Clarksville.
Spence, A. D., Goshen.
Spence, C. J., 1036 Celestial St., Cincinnati.
Stevens, A. S., Kings Mills.
Stevens, E. S., Lebanon.
Strickler, Louis, 18 E. Eighth St., Cincinnati.
Taylor, Wm. H., 533 W. Seventh St., Cincinnati.
Thompson, J. A., 628 Elm St., Cincinnati.
Tribbet, C. A., Westboro.
Trimble, R. T., New Vienna.
Tufts, Chas. W., Hartwell.

Van Winkle, B. L., Blanchester.
Van Winkle, N. B., Blanchester.
Wakefield, J. D., Loveland.
Walker, E. W., 30 W. Eighth St., Cincinnati.
Walton, L. A., Milford.
Wire, G. W., Wilmington.
Whitacre, H. J., Auburn Ave., Cincinnati.
Zenner, Philip, Glen Bldg., Cincinnati.
Zinke, E. Gustav, 13 Garfield Pl., Cincinnati.

MONTGOMERY COUNTY MEDICAL SOCIETY

J. S. Beck.....President.
Horace Bonner.....Secretary.
F. C. Gray.....Vicepresident.
D. C. Lichliter.....Treasurer.
Censors—George Goodhue, G. A. Myers, D. W. Greene.

MEMBERS

Bailey, V. M.
Barker, F. D.
Baron, F. S.
Barrere, D. M.
Bates, Albert L.
Beck, J. S.
Bohlender, E. E.
Bonner, Horace.
Boone, A., Englewood.
Bridenbach, C. H.
Burns, Wm. A.
Carter, J. L., W. Carrollton.
Chrisman, C. N.
Conklin, W. J.
Crum, E C.
Davisson, E. C.
Davisson, J. A.
Delscamp, W. H.
Dolina, J. F.
Duckwall, Francis.
Dunham, A. H.
Dupuy, T. V.
Evans, Geo. B.
Ewing, W. A.
Farber, J. H.
Fife, Frank.
Gaugler, R. S.
Geyer, John.
Gilbert, T. D.
Goodhue, George.
Gray, F. C.
Greene, D. W.
Gunckel, P. W.
Haning, H. C.
Hatcher, H. H.
Hecker, L. E.
Henry, F. R.
Hochwalt, G. A.
Hooven, W. E.
Hous, G. W., Clayton.
Huffman, D. C.
Humphreys, C. H.
Huston, E. M.
Iddings, A. H.
Jenner, H. G.
Jewett, H. S.
Judy, C. S.
Keever, D., Centerville.
Kimmel, H. S.
King, C. W.
Kline, Walter L.
Krauss, L. S., Middletown.
Lichliter, D. C.
MacGregor, Chas.
Marshall, W. C.
Marshall, T. E.
McCassy, J. H.
McDonald, E. A.
Meyers, G. A.
Mills, Daniel C., New Lebanon.
Mundhenk, W. S.; Brookville.
Murray, J. E., Middletown.
Patterson, C. L.
Pettit, R. R.
Plattfaut, Wm.
Ratliff, J. M., S. O. Hospital.
Reeve, J. C., Jr.
Reilly, D. G.

Salisbury, C. W. Dayton.
Scheibenzuher, D. A.
Schuster, G. R., Dayton.
Shollenberger, W. L.
Slagle, C. D., Centerville.
Smith, Webster S.
Souders, Samuel, Dean P. O.
Spitler, Ephraim, Center.
Weaver, Fred. C.
Weaver, J. M.
Weaver, W. P., Miamisburg.
Williamson, A. M.

MORROW COUNTY MEDICAL SOCIETY

Auxiliary since 1897

H. S. Green.....President.
A. D. James.....1st Vicepresident.
G. W. Morehouse.....2d Vicepresident.
F. C. Griffis.....Secretary.
J. W. Wood.....Treasurer.

MEMBERS

Bennett, W. C., Mt. Gilead.
Dunham, C. C., Fulton.
Green, H. S., Cardington.
Lerch, R. W. E., Mt. Gilead.
Mateer, R. V., Toledo.
McCormac, J. C., Mt. Gilead.
Morehouse, G. W., Sparta.
Neal, C. H., Cardington.
Pierce, R. L., Columbus.
Sherman, E. C., Bennington.
Spear, R. C., Mt. Gilead.
Thompson, F. E., Marengo.
Virtue, D. B., Iberia.
Warmeling, C. T., Cardington.
Welch, Ella, Ashley.
Williams, J. W., Chesterville.
Wood, J. W., Mt. Gilead.

MUSKINGUM COUNTY MEDICAL SOCIETY

Auxiliary since 1894

J. C. Crossland.....President.
C. A. Dunn.....Vicepresident.
G. Warburton.....Rec. Secretary.
W. C. Bateman.....Cor. Secretary.
E. C. Drake.....Treasurer.

MEMBERS

Allen, Edgar, Zanesville.
Axline, C. Z., Fultonham.
Axline, F. A., Saltilo.
Bainter, R. B., Adamsville.
Bateman, W. C., Zanesville.
Brush, E. C., Zanesville.
Cass, Edward, Dresden.
Chapplear, H. C., Hopewell.
Corson, O. I., Zanesville.
Crider, C. L., Zanesville.
Crossland, J. C., Zanesville.
Davis, J. T., Zanesville.
Drake, E. C., Zanesville.
Dunn, C. A., Stovertown.
Evans, D. J., Zanesville.
Fassig, J. M., Zanesville.
Fleming, J. D., Frazersburg.
Geyer, H. R., Zanesville.
Geyer, J. L., Norwich.
Hanna, C. U., Zanesville.
Harris, H. B., Zanesville.
Higgins, Chas., Sonora.
Hill, Anna M., Zanesville.
Holden, J. L., Zanesville.
Holston, J. G. F., Zanesville.
Hosick, W. R., Adamsville.
Kelley, S., Zanesville.
King, F. I., Hoople, N. Dakota.

Klemm, Wm., Zanesville.
Lane, G. W., Sago.
Leeper, J. L., Rural Dale.
Lenhart, C. M., Zanesville.
Logsdon, E. C., Zanesville.
Mathews, D. J., Zanesville.
McCormick, G. W., Zanesville.
McCreary, H. M., New Concord.
Melick, John, Frazersburg.
Melick, W. A., Zanesville.
Mercer, N. D., Philo.
Nye, H. S., Zanesville.
Peabody, Anna, Zanesville.
Prout, G. B., Philo.
Rambo, C. M., Zanesville.
Sealover, Wm., Zanesville.
Sellers, C. P., Zanesville.
Sheppard, H. J., Zanesville.
Squires, A. W., White Cottage.
Sutton, H. T., Zanesville.
Templeton, A. M., Zanesville.
Trout, C. B., Duncan's Falls.
Warburton, G., Zanesville.
Watkins, Fred., Fultonham.
White, J. A., New Concord.

.. NORTH CENTRAL OHIO MEDICAL SOCIETY

Auxiliary since 1881 — Annual Meeting in March

C. E. Trimble.....President.
A. M. Duncan.....Vicepresident.
J. S. Hedges.....2nd Vicepresident.
S. E. Findley.....Secretary.
J. Lillian McBride.....Treasurer.

MEMBERS

Alban, S. N., Mansfield.
Anderson, M., Shelby.
Ash, L. B., Ashland.
Atkinson, M. G., Mansfield.
Baughman, G. W., Mansfield.
Beall, J. T., Ontario.
Bertolette, H. B., Shreve.
Bland, W. W., Shelby.
Boles, R. S., Mansfield.
Bushnell, Wm., Mansfield.
Carpenter, E. G., Columbus.
Chestney, John J., Bucyrus.
Chisholm, H., Marion.
Crane, A. M., Marion.
Crile, G. W., Cleveland.
Critchfield, Lizzie Curtis, Mt. Vernon.
Culler, J. F., Lucas.
Davis, M. J., Mansfield.
Denman, W. C., Marion.
Duncan, A. M., Bucyrus.
Eastman, N. R., Bellville.
Erwin, A. J., Mansfield.
Findley, S. E., Mansfield.
Finley, M. J., Mansfield.
Fitzsimmons, Jas. F., Bucyrus.
Francis, D. R., Mansfield.
Goodman, Guy T., Mansfield.
riffis, F. C., Mt. Gilead.
ll, B. C., Richwood.
Harding, B. F., Mansfield.
Harris, C. Jenner, Mansfield.
House, A. F., Cleveland.
Huffman, O. L., Galion.
Hyde, A. F., Shelby.
Kemp, Lucia, Bucyrus.
Kendig, E. V., Hayesville.
King, J. I., Martel.
Kipp, A., Mansfield.
Koehler, J. A., Shelby.
Larimore, F. C., Mt. Vernon.
Lee, A. C., Lucas.
Lewis, R. M. C., Marion.
Loughridge, W. E., Mansfield.
Love, M. T., Shelby.
Maglott, John, Mansfield.
McArthur, J. A., Mansfield.
McBride, J. Lillian, Mansfield.
McCullough, A. H., Mansfield.
McMillan, D. C., Mansfield.
McMurray, A. B., Marion.
McNaul, John, Mansfield.
Millikin, Emma, Ontario.
Myers, I. A., Shelby.
Nichols, J. H., Mansfield.
Potter, L. B., Fredericktown.
Race, C. W., Sandusky.
Rhu, Auguste, Marion.
Roebuck, L. L., Richwood.
Roushsutter, Frances A., Shelby.

Sattler, G. P., Mansfield.
Sawyer, John A., Cleveland.
Shipley, A. D., Mansfield.
Smith, H. H., Lexington.
Stevens, J. L., Mansfield.
Stewart, J. S., Mansfield.
Thomas, F. W., Marion.
Trimble, C. E., Crestline.
Uhler, A. P., Marion.
Vannatta, H., Seal.
Wells, J., Marion.
Yoder, J. A., Lucas.

NORTHWESTERN OHIO MEDICAL ASSOCIATION

John A. Wilkins.....President.
H. B. Gibbon.....Vicepresident.
M. M. Hixson.....Vicepresident.
Joseph P. Baker.....Secretary.
T. M. Gehret.....Assistant Secretary and Treasurer.

MEMBERS

Alter, Francis W., Toledo.
Anderson, Wm. V., Toledo.
Archer, James D., Holgate.
Archer, John R., N. Baltimore.
Aris, James F., Toledo.
Armstrong, E. E., Grand Rapids.
Ashton, Edwin, Lima.
Ayers, M. M., Continental.
Babcock, Harry L., Defiance.
Bailey, Gerard, Willshire.
Bain, Frank D., Kenton.
Bainbridge, Cathrine M., Toledo.
Baker, Joseph P., Findlay.
Baldwin, Flavius J., Findlay.
Banning, J. C., Belle Center.
Barlow, Edwin B., Toledo.
Barringer, David, Rocky Ridge.
Bates, Fred. L., Lima.
Baxter, Samuel A., Lima.
Beard, Loren A., Pioneer.
Beardsley, Chas., E. Ottawa.
Beardsley, Corydon O., Ottawa.
Beauchamp, Wesley W., Rockford.
Becker, Bernhardt, Toledo.
Begg, William H. Columbus Grove.
Beleau, Nellie, Defiance.
Belt, Harry, Findlay.
Belt, William A., Kenton.
Benner, Charles T., Tiffin.
Berlin, Cicero, Wapakoneta.
Bessey, J. Mortimore, Toledo.
Betts, Chas., Toledo.
Binder, Albert, Ottoville.
Bird, Edward H., Dupont.
Bishop, Sylvester P., Delta.
Blaine, Harry G., Attica.
Blair, Thomas, Lyons.
Bland, Jerome, Bucyrus.
Bloomfield, John, Napoleon.
Blue, N. S., Pettisville.
Bodman, Lewis H., Toledo.
Bolman, C. F., Coldwater.
Bond, John W., Toledo.
Borman, Adam, Toledo.
Bowen, George W., Toledo.
Bowen, A. Delbert, West Lodi.
Bowers, Isaiah S., Perrysburg.
Bowman, Madison H., Toledo.
Bowman, James L., Coldwater.
Brand, Walter W., Toledo.
Brattain, George E., Payne.
Brattain, G. M., Antwerp.
Brayton, Asa, Carey.
Brayton, Wm. G., Fostoria.
Bricker, John W., Fostoria.
Brigham, Oshea S., Toledo.
Brubaker, John L., West Hope.
Brundage, Norman E., Delphos.
Brunthaver, Frank, Maumee.
Burley, Samuel V., Bays.
Burritt, Charles A., Toledo.
Burritt, William H., Toledo.
Burton, Enos G., Lima.
Busch, William, Sandusky.
Byal, William A., Findlay.
Cameron, Robert B., Jewell.
Campbell, Clair S., Tedrow.
Campbell, Lawrence W., Ada.
Cavett, Charles S., Cygnet.
Cessua, B. F., Kenton.
Chamberlin, David P., Toledo.

Chapman, William C., Toledo.
Cherry, William, Toledo.
Chesney, John A., Bucyrus.
Chilcote, Edgar H., Bloomdale.
Christy, S. K., Willshire.
Clark, Dorman J., Toledo.
Clark, J. Fred., Toledo.
Clark, J. R., Bluffton.
Clark, Lucien D., Toledo.
Clevenger, Richard E., N. Washington.
Cobb, Fred. A., Toledo.
Cole, C. B., Grand Rapids.
Cole, C. S., Toledo.
Cole, J. S., Toledo.
Cole, W. C., VanWert.
Coleman, James A., Toledo.
Collamore, George A., Toledo.
Collins, Charles, Lima.
Cook, Alta F., Sandusky.
Cook, Henry, Hicksville.
Cook, J. M., Weston.
Coombs, John M., Hicksville.
Coppess, Robert F., Alger.
Cordier, Henry J., Rockford.
Cosgrove, S. F., Swanton.
Cosgrove, Thomas, Toledo.
Courtright, Frank Elmer, Shawtown.
Covington, Perry D., Bellefontaine.
Coy, Martin C., Stryker.
Cramer, Martin S., Ohio City.
Craver, S. Belle, Toledo.
Crooks, Robert L., Convoy.
Curry, John H., Toledo.
Darbyshire, Morris H., McComb.
Davis, John, Gomer.
Davis, Samuel, Waterville.
Day, H. M., Pandora.
Deemer, Horace E., Antwerp.
Denman, James K., The Bend.
De Vilbiss, Allen, Toledo.
Dickey, William A., Toledo.
Dine, Colston L., Minster.
Dix, Mrs. Sarah E., Paulding.
Donnelly, James, Toledo.
Duncan, Arthur M., Bucyrus.
Duncan, James A., Toledo.
Dunnigan, Fred. B., Maumee.
Durbin, Richard M., Woodville.
Edwards, Edward, Delphos.
Elwell, Welcome M., Toledo.
Entrikin, Franklin B., Findlay.
Evans, J. B., Ada.
Ewing, Myron J., Findlay.
Ewing, Frank, West Cairo.
Faber, Charles A., Toledo.
Fast, Lee Roy, Paulding.
Fauster, John U., Paulding.
Files, Charles A., Van Wert.
Finch, Risdon W., Defiance.
Firmin, Francis W., Findlay.
Firmin, John M., Findlay.
Fiser, James H., Malinta.
Fisher, Albert W., Toledo.
Fisher, Charles E., Toledo.
Fisher, William H., Toledo.
Fledderjohann, H. E., New Knoxville.
Focht, William H., Tiffin.
Foltz, Tobias H., Lima.
Foltz, J. H., Kirby.
Force, Clarence A., Attica.
Galer, Frank M., DeGraff.
Gardiner, William G., Toledo.
Gardner, John, Toledo.
Gehrett, Theodore M., Deshler.
George, Edward, Van Buren.
George, John F., Fort Jennings.
Gibbon, Harmon B., Tiffin.
Gillette, William J., Toledo.
Glenn, Ludwell G., Kenton.
Goebel, Anna M., Lima.
Graefe, Charles, Sandusky.
Graham, Isaac E., Marseilles.
Green, Charles S., Fostoria.
Greenfield, Edgar J., Toledo.
Grosch, Lawrence C., Toledo.
Groschner, Carl B., Toledo.
Guise, John M., Findlay.
Guise, Perry O., Findlay.
Gundrum, Willis H., Toledo.
Haag, Daniel E., Liberty Center.
Haag, Harry P., Liberty Center.
Hahn, Henry F., Toledo.
Haines, John B., Beaver Dam.
Haley, J. S., Napoleon.
Hall, Harry L., Toledo.
Halleck, Frank Dana, Portage.
Hamlin, George E., Toledo.
Hane, Charles Lincoln, Florida.
Harper, William H., Lima.
Harrison, Eugene B., Napoleon.
Harrison, Frank M., Napoleon.
Hartman, George W., Wauseon.
Hasencamp, Oscar, Toledo.
Hathaway, Harrison, Toledo.
Hattery, J. E., Celina.
Havighorst, Henry S., Toledo.

Haynes, John T., Sandusky.
Heaton, Charles A., McCutchinsville.
Hedrick, James S., Dunkirk.
Heffron, Charles H., Metamora.
Heileman, Jacob H. Waynesfield.
Heistand, E. B., Kenton.
Heller, Frederick S., Oak Harbor
Heller, J., Grand Rapids.
Heltman, Elmer W., Toledo.
Hendershott, R. R., Tiffin.
Henderson, George H., W. Cairo.
Henry, Albert G., N. Baltimore.
Herrington, Samuel G., Rawson.
Henzler, Charles J., Toledo.
Hersch, Edward G., McComb.
Hershiser, Henry K., Tiffin.
Hickey, William H., Leipsic.
Higbie, John L., Jenera.
Hill, Emily, Bowling Green.
Hill, Robert M. C., Delphos.
Hill, William W., Weston.
Hiner, Solomon B., Lima.
Hines, J. Arthur, Van Wert.
Hitchcock, Salathiel A., Elida.
Hixon, W. M., Continental.
Hoege, George L., Fostoria.
Holst, E. Bertram, Haskins.
Hover, William E., Lima.
Howell, J. Albert, McComb.
Hubbard, Thomas, Toledo.
Hughes, Don C., Findlay.
Huntley, Joseph H., Lima.
Hurd, Anson, Findlay.
Hutchinson, James H. S., Mifflin.
Huyck, Emory B., Oak Harbor.
Imhoff, C. E., Belmore.
Jacobi, Frank, Toledo.
Jacobson, Julius H., Toledo.
Jaeger, Fred., Toledo.
Jenner, Albert B., Arlington.
Jones, C. P., Nevada.
Jones, Richard E., Gomer.
Jones, William H., Van Wert.
Kahle, A. Wesley, Lima.
Kahle, Raymond D., Lima.
Keller, Thomas F., Toledo.
Kennedy, Nelia B., Findlay.
Kimbell, Orville W., Tiffin.
Kimmell, Jacob A., Findlay.
Kimmont, Thomas C., Hicksville.
Kirkby, Cyrus A., Toledo.
Kishler, W. G., St. Mary's.
Kitchen, Francis A. Toledo.
Krebs, R. J., Waynesfield.
Ladd, Leonard E., Middlepoint.
Landmann, Otto, Toledo.
La Salle, James J., Toledo.
Lathrop, Arthur B., Swanton.
Landick, Lewis F., Lima.
Lawless, James T., Toledo.
Leever, John C., Eaton.
Lemley, Ernest P., Columbus Grove.
Lenhart, Peter J., Wauseon.
Leonard, B. B., West Liberty.
Leonard, Ben. S., West Liberty.
Lewis, Harry A., Continental.
Light, Frank, Ottawa.
Lisle, Lida, Celina.
Lisle, John M., Celina.
Lockhard, Lorenzo B., Toledo.
Long, John W., Bryan.
Longsworth, Wm. N., Convoy.
Lony, Charles, Toledo.
Love, George Rusk, Toledo.
Lynch, William, Greenville.
McCall, Edwin E., Lima.
McClaren, Howard H., Bloomdale.
McClung, John C., Leipsic.
McConnell, David W., Marseilles.
McCormick, Edgar, Kossuth.
McCoy, Clem. D., Kenton.
McGavren, Geo. W., Van Wert.
McGuire, Charles W., Toledo.
McIlvain, Wm. H., Kenton.
McKellar, Arch., Green Springs.
McKinley, Daniel B., Dupont.
McKinley, E. Burns, Vaughnsville.
McKnight, Virginia Harley, Lima
McLachlan, Norman L., Findlay.
McLaughlin, Chalmers C., Dunkirk.
McLeod, Joseph R., Findlay.
McOscar, J. R., Waterville.
McVety, Albert F., Toledo.
Maerker, A. E. H., Napoleon.
Manville, Andrew J., Bowling Green.
Martin, Franz S., Napoleon.
Martin, John C., Findlay.
Mather, T. J., St. Mary's.
Mathers, W. L., Bowling Green.
Mathews, J. F., Lima.
Matthias, Albert C., McComb.
Mauk, Edwin B., Delphos.
May, Edward G., Toledo.
Merz, Charles H., Sandusky.

Miller, Clarren S., Toledo.
Miller, George W., Lorain.
Miller, Stanton E., Florida.
Mills, Charles H., Toledo.
Montgomery, John S., Huntsville.
Moots, C. W., Delphos.
Morgan, Richard J., Van Wert.
Morris, Frank, Columbus Grove.
Morris, Joseph, Columbus Grove.
Mortland, David G., Edgerton.
Moury, David, Bellefontaine.
Mumaugh, Shelby, Lima.
Munn, Howard E., Toledo.
Munson, Augustus W., Kenton.
Murbach, Andrew J., Archbold.
Murbach, Edwin A., Archbold.
Myers, A. H., Carey.
Neuman, J. E., Leipsic.
Neville, W. S., Roundhead.
Nevins, J. I., St. Johns.
Newcomb, John I., West Unity.
Newton, C. William, Toledo.
Noble, Herbert E., Toledo.
Noble, Nathan T., St. Mary's.
Norris, Milton M., Fostoria.
Norris, Ora L., Deshler.
North, John, Toledo.
Nuding, William H., Botkins.
O'Dell, Samuel, Swanton.
Parent, William H., Lima.
Parker, Hal. M., Delta.
Paul, Alva L., Ottawa.
Pence, Leroy, Spencerville.
Perkins, Charles E., Norwalk.
Phelps, Charles H., St. Mary's.
Phillips, David P., Kenton.
Phillips, William S., Belle Center.
Pontius, Charles R., Fremont.
Pope, Joseph E., Dunbridge.
Powell, William S., Defiance.
Protzman, Elmer S., Kenton.
Pugh, Frank H., Bryan.
Radebaugh, Peter, New Bremen.
Ramsbottom, I. J., Wabash.
Reed, Elias J., Leipsic.
Reid, Charles B., Van Wert.
Reid, Calvin H., Toledo.
Reid, Warren F., Ottawa.
Reiff, Charles F., Fremont.
Reinfrank, John H., Perrysburg.
Reinfrank, Wm. H., Perrysburg.
Reinhart, James C., Toledo.
Reynolds, John J., Defiance.
Rhu, Auguste, Marion.
Rice, Robert H., Fremont.
Richardson, David H., Celina.
Richardson, E. O., Marion.
Richardson, J. V., Ft. Recovery.
Riley, Robert E., Celina.
Roether, Henry R., Perrysburg.
Rogers, George F., Bryan.
Rogers, Joseph A., Kenton.
Rohrs, Henry F., Napoleon.
Roller, Walter C., Spencerville.
Root, Henry A., Toledo.
Roush, William, Spencerville.
Rudy, Albert S., Lima.
Rudy, James F., Bluffton.
Sager, Joseph, Celina.
Sager, Newton, Jr., Herring.
Schaffer, J. Homer, Cridersville.
Schlink, Francis H., New Reigel.
Schnetzler, H. Marcus, Toledo.
Schnetzler, Jacob, Toledo.
Scott, I. K., La Rue.
Shaffner, J. T., Willshire.
Sharpe, William J., Toledo.
Shibley, Albert F., Glandorf.
Shepherd, Arthur F., Toledo.
Sherrard, A. C., Oakwood.
Sherwood, Horace W., Belmore.
Showman, Charles M., N. Baltimore.
Skinner, Samuel W., Toledo.
Slager, Jacob L., Paulding.
Slocum, Charles E., Defiance.
Smalley, William M., Ohio City.
Smith, Anna G., Toledo.
Smith, Charles H., Kenton.
Smith, Charles N., Toledo.
Smith, DeWitt C., Dunkirk.
Smith, William, Van Wert.
Snodgrass, Jesse, Kenton.
Snodgrass, William C., Kenton.
Snyder, Clarence, Rudolph.
Snyder, Earl A., Bryan.
Snyder, Walter Hamilton, Toledo.
Stamm, Martin, Fremont.
Stansell, Joseph A., Forest.
Steiner, David W., Lima.
Steiner, Isaac F., Lima.
Steiner, Henry G., Delphos.
Stephenson, Arlington, Ft. Recovery.
Stevens, Merari B., Defiance.
Stewart, Clarence E., Toledo.
Stewart, James M., Fremont.
Stewart, William D., Toledo.

St. John, Charles S., Bowling Green.
Storz, Christian, Toledo.
Stuckey, Walter, Wapakoneta.
Stueber, Fred S., Lima.
Stueber, Louis J., Lima.
Suker, George, Toledo.
Swimley, W. A., Forest.
Symons, John P., Rockford.
Taylor, Martin, Ft. Recovery.
Terwilliger, Thompson R., Lima.
Thacker, Ludwell G., Defiance.
Thomas, Bert E., St. Mary's.
Thomas, Orange H., Fremont.
Thompson, John C., Rollersville.
Thorn, Samuel S., Toledo.
Tobey, Henry A., Toledo.
Tracy, James L., Toledo.
Trichler, W. S., Bowling Green.
Trovinger, John R., Arlington.
Tubbs, Arba B., Ridgeville Corners.
Tuller, Willis M., Bowling Green.
Tupper, E. L., Ottawa.
Tuttle, Schuyler S., Van Wert.
Uberroth, Marion W., New Reigel.
Vail, Jonathan Byal, Lima.
Van Note, William B., Lima.
Van Pelt, Charles L., Toledo.
Vickers, Hilton A., Findlay.
Virtue, Frank M., Sulphur Springs.
Waddick, James M., Toledo.
Wagar, Charles P., Toledo.
Walker, R. G., Toledo.
Walters, J. W., Ada.
Waters, Ralph T., Lakeside.
Weadock, Thomas M., Lima.
Weaver, Phillip F., Coldwater.
Weger, George W., Delphos.
West, M. O., Mexico.
West, Thomas J., Tiffin.
Westrick, John D., Defiance.
Wetherill, Ira R., Bluffton.
Wilkins, Arch. W., Delta.
Wilkins, John A., Delta.
Wilkinson, E. L., Van Wert.
Willard, G. P., Tiffin.
Willett, Peter, Elmore.
Willett, Roland A., Elmore.
Williams, Freeman S., Kalida.
Williams, Linnaeus G., Fostoria.
Williamson, Milton S., Alvada.
Wilson, Theron S., Findlay.
Wintermute, G. J. C., Celina.
Wirebaugh, I. V., Prairie Depot.
Wood, William I., Medina.
Woods, John K., Van Wert.
Woods, Leroy S., Rawson.
Woods, Thomas E., Findlay.
Wordsworth, Miner, Hoytsville.
Wright, James B., Convoy.
Wright, John A., Toledo.
Yingling, George S., Tiffin.
Yost, William N., Findlay.
Young, Downing H., Chicago, O.
Young, Nelson H., Toledo.
Zebold, A. M., Shelby.
Zigler, H. H., Ayresville.
Zopfi, William J., Findlay.

PERRY COUNTY MEDICAL SOCIETY

Auxiliary since 1897

J. G. McDougal.....President.
N. T. McTeague.....Vicepresident.
R. L. Richards.....Secretary and Treasurer.

MEMBERS

Axline, C. Z., Fultonham.
Axline, J. D., Shawnee.
Axline, Fred, (P. O. Buckeye Cottage.)
Barnes, B. F., Hemlock.
Barrow, C. A., New Straitsville.
Book, R. D., Corning.
Brush, E. C., Zanesville.
Callinan, D. F., Corning.
Clemson, G. W., Thornville.
Clouse, Lewis, Somerset.
Davis, J. I., Shawnee.
Dennison, J. M., Blatchford.
Donaldson, J. H., Gore.
Dupler, W. P., Crooksville.
Essington, U. K., Readington.
Folk, P., Deavertown.
Gordan, P. A., Junction City.

Hayes, J. D., Somerset.
Holcomb, C. B., Corning.
Holland, A. C., Mt. Perry.
Hutchfield, John, Moxahala.
Kennedy, G. L., Roseville.
Lewis, W. G., Rushville.
Longstreth, W. E., Comly.
McDougal, J. G., New Lexington.
McTeague, N. T., New Lexington.
Miller, Jas., Comly.
Moody, I. A., Junction City.
Norman, O. M., Roseville.
O'Farrell, M., Shawnee.
Pugh, G. H., Thornville.
Richards, A., New Lexington.
Richards, R. L., New Lexington.
Schenck, C. E., Thornville.
Sessoms, J. S., Rendville.
Stoneburner, W. H., Roseville.
Thomas, B. A., Rushville.
Trout, G. B., Dillon.
Walker, G. W., Roseville.
White, D. A., Thornville.
Winters, B. E., New Straitsville.
Wright, J. H., New Lexington.

PIKE COUNTY MEDICAL SOCIETY

J. W. Obrist.....President.
E. W. Tidd.....Vicepresident.
J. S. Hunter.....Secretary.
J. B. Ray.....Treasurer.
Board of Censors—C. H. Wilson, J. L. Caldwell, O. C. Andre.

MEMBERS

Andre, O. C., Waverly.
Brown, E. O. S., Beaver.
Caldwell, J. L., Waverly.
Dixon, E. M., Flat.
Hooper, W. H., Waverly.
Hunter, J. S., Piketon.
Hutt, Austin, Waverly.
Jones, W. S., Waverly.
Obrist, J. W., Beaver.
Ray, J. B., Omega.
Samson, H. M., Lancaster.
Samson, W. S., Lancaster.
Tidd, E. W., Wakefield.
Willson, C. H., Idaho.
Windle, S. E., Latham.
Wiseman, J. S., Beaver.

ROSS COUNTY MEDICAL SOCIETY

B. F. Miesse.....President.
F. M. Smallwood.....Secretary.

MEMBERS

Cole, A. P., Chillicothe.
Cox, J. M., South Salem.
Deuschle, W. D., Columbus.
Evans, J. M., Clarksburg.
Evans, T. W., Richmond Dale.
Galbreath, E. J., Chillicothe.
Gorslene, G. L., Chillicothe.
Hall, R. B., Cincinnati.
Hall, W. A., Chillicothe.
Hanley, J. M., Chillicothe.
Lash, J. W., Chillicothe.
Leslie, J. M., Chillicothe.
Lightner, S. C., Hallsville.
Matthews, J. M., Clarksburg.
McKee, R. H., Bainbridge.
Meggenhoffen, E., Chillicothe.
Miesse, B. F., Chillicothe.
Miesse, Chas., Chillicothe.
Moore, W. E., Chillicothe.
Morgan, J. B. F., Clarksburg.
Pancake, Isaac, Jr., Frankfort.
Pricer, W. B., Ironton.

Ray, L. D., Gillespieville.
Reedy, C., Kingston.
Robb, H. H., Frankfort.
Robbins, G. E., Chillicothe.
Robinson, R. D., Hallsville.
Schmausser, C. E., Chillicothe.
Scott, D. H., Chillicothe.
Scott, W. S., Chillicothe.
Smallwood, E. H., Chillicothe.
Smallwood, F. M., Chillicothe.
Smith, W. A., Chillicothe.
Tatman, O. P., Chillicothe.
Van Winkle, J. A., Bourneville.
Wiltshire, J. M., Gillespieville.
Wiltshire, J. S., Gillespieville.

SHELBY COUNTY MEDICAL SOCIETY

J. W. Costolo.....President.
G. E. Martin.....Vicepresident.
C. E. Johnston.....Secretary.
J. R. Caywood.....Treasurer.

MEMBERS

Cable, T. B., Pemberton.
Carter, J. M., Jackson Center.
Caywood, J. R., Lockington.
Costolo, J. W., Sidney.
Dine, C. L., Minster.
Geyer, J. D., Sidney.
Hollopeter, J. S., Houston.
Hussey, M. F., Sidney.
Harbour, C. W. B., Anna.
Johnston, C. E., Sidney.
Loffer, O. W., Maplewood.
Martin, G. E., Anna.
Miller, J. F., Port Jefferson.
Milholland, Wm., Sidney.
McBurney, Ed., Jackson Center.
Peebles, G. E., Hardin.
Pepper, Lester C., Loramies.
Silver, D. R., Sidney.
Sharp, B. M., Sidney.
Smoot, C. E., Pemberton.
Staley, Ralph, Sidney.
Steeley, Ed., Anna.
Speece, N. V., Quincy.
Tate, G. M., Botkins.
Tate, C. H., Botkins.
Yates, E. A., Kirkwood.

SPRINGFIELD ACADEMY OF MEDICINE

T. F. Bliss.....President.
Noah Myers.....First Vicepresident.
S. R. Hutchings.....Second Vicepresident.
C. L. Minor.....Secretary and Treasurer.
Executive Committee—G. F. Brubaker, C. S. Ramsey, W. B. Patton.

MEMBERS

Bell, R. L., 60 Spring st.
Bliss, T. F., cor. High & Spring.
Bliss, C. B. cor. High & Spring.
Bright, W. E., North Hampton.
Brinkman, G. D., 29½ S. Limestone st.
Brinkman, G. F., 29½ S. Limestone st.
Brubaker, G. F., 65 E. High st.
Davis, E. F., cor. High & Spring.
Davy, J. O., 20 W. High st.
Easton, J. C., 9½ E. Main.
Evans, O. H., 1 Clifton st.
Evans, C. W., 196 Clifton st.
Harris, E. C., 67 E. High st.
Harris, J. H., Clifton, Ohio.
Hiestand, C. M., 65 E. High st.
Hiestand, H. L., Donaldsville.
Hutchings, S. R., 258 W. High st.
Link, J. A., cor. High & Spring.

Minor, C. L., Savings Bank Bldg.
Myers, Noah, 53 E. High st.
Myers, J. E., 53 E. High st.
Niles, L. E., 23½ S. Fount. ave.
Patton, W. B., Zimmerman Bldg.
Patton, M. V., 63 E. High st
Ramsey, C. S., King Block.
Reade, T. M., 62½ E. Main st.
Spence, D. W., King Block.
Stafford, S. R., New Carlisle.
Syman, L. L., 23½ S. Fount. ave.

STARK COUNTY ACADEMY OF MEDICINE

R. A. Biechle.....President.
Esther M. Tyrrell.....Secretary and Treasurer.
F. E. Hart.....Corresponding Secretary.

MEMBERS

Baker, W. O., Louisville.
Barnes, S. S. P., Massillon.
Becher, W. H., N. Industry.
Biechle, R. A., Canton.
Burns, Katherine, Canton.
Bye, J. M., Canton.
Campbell, A. B., Canal Fulton.
Conklin, S. A., Canton.
Corl, H. E., Middlebranch.
Crane, C. A., Canton.
Culbertson, N. W., Massillon.
DeWitt, J. P., Canton.
Flickinger, L. E., Canton.
Foulkes, M. C., Canton.
Foulkes, W. S., Canton.
Fraunfelter, James, Canton.
Gans, D. W., Massillon.
Gavin, F., Canton.
Goodrich, C. H., Sandyville.
Hanson, H. P., Greentown.
Hart, F. E., Canton.
Hinder, D. A., Canton.
Hudson, J. F., Canton.
Kahler, J. Frank, Canton.
Klingensmith, J. B., Sparta.
Lichty, M. J., Cleveland.
Manchester, W. C., Sebring.
March E. J., Canton.
Marchand, J. F., Canton.
Miller, T. Clark, Massillon.
Morrow, E. P., Canton.
Morrow, E. O., Canton.
Myers, E. G., Canton.
Pfouts, I. M., Massillon.
Phillips, T. H., Canton.
Portman, E. O., Canton.
Post, S. B., Canton.
Pumphrey, R. J., Massillon.
Reed, T. F., Massillon.
Reed, Thos. J., Massillon.
Reed, J. L., Canton.
Robinson, S., Canton.
Santee, L. B., Marlboro.
Schilling, C. E., Canton.
Spratt, W. R., Malvern.
Steele, W. C., New Berlin.
Tyrrell, Esther M., Canton.
Walker, C. A., Louisville.
White, R. W., Mineral City.
Williams, R. G., New Berlin.

TOLEDO MEDICAL ASSOCIATION

Wm. H. Fisher.....President.
John North.....Vicepresident.
Chas. P. Wagar.....Recording Secretary.
A. C. Schnetzler.....Corresponding Secretary.
F. E. Klauser.....Treasurer.

MEMBERS

Alter, Francis W.
Anderson, W. V.
Bainbridge, Kathryn M.
Barlow, E. B.
Beckwith, Seth W.
Bodman, Lewis H.
Bowman, David E.
Brand, W. W.
Brewer, Lyman A.
Chapman, Wm. C.
Cherry, Wm.
Coldham, Wm. W.

Collamore, Geo. A.
Curry, John H.
DeVilbiss, Allen.
Donnelly, James.
Donnelly, Peter.
Duncan, James A.
Ely, J. D.
Fisher, Albert W.
Fisher, Charles E.
Fisher, Wm. H.
Gardiner, Agnes M.
Gifford, W. R.
Gillette, W. J.
Girardot, A. J.
Grosh, L. C.
Gundrum, W. H.
Hall, Harry L.
Hasencamp, O.
Hathaway, Harrison.
Haynes, J. Purcell.
Heltman, E. W.
Heydrich, L. W.
Jacobi, Frank.
Jacobson, J. H.
Jerome, M. A.
Kirkley, Cyrus A.
Kitchen, Francis A.
Klauser, F. E.
Landman, Otto.
Lawless, James T.
Leslie, F. A.
Main, O. M.
McInnes, J. P.
McVety, Albert F.
Miller, Louis.
Newton, C. W.
North, John.
Prentiss, Pearce.
Reed, Calvin H.
Reinhart, James C.
Rieg, Philip S.
Root, Henry A.
Schnetzler, A. C.
Schnetzler, H. Marcus.
Sharpe, W. J.
Slocum, Belle.
Smead, H. E.
Smith, Anna Groff.
Smith, Chas. N.
Snyder, Walter H.
Stewart, W. D.
Stewart, C. E.
Storz, C.
Suker, Geo. F.
Thorn, Samuel S.
Tobey, Henry A.
Van Pelt, Charles L.
Wagar, Charles P.
Walker, Robert S.
Wickham, Wm.
Wilson, F. P.
Woods, Elizabeth.
Young, Nelson H.

TUSCARAWAS COUNTY MEDICAL SOCIETY

Auxiliary since 1851 — Annual Meeting in April

C. D. Kurtz.....President.
J. E. Groves.....Vicepresident.
J. A. McCullam.....Treasurer.
Martha Shalter.....Secretary.

MEMBERS

Anderson, B. G., Uhrichsville.
Barton, R. S., New Philadelphia.
Beers, A. M., Newcomerstown.
Blickensderfer, Jos., Uhrichsville.
Brannan, T. H., Canal Dover.
Davidson, H. S., Somerdale.
Dunn, E. S., Port Washington.
Finical, F. F., Dennison.
Fox, J. F., New Philadelphia.
Gentsch, D. C., New Philadelphia.
Gooding, J. J., Gilmore.
Gordon, Thomas, Uhrichsville.
Goudy, J. W. S., Newcomerstown.
Groves, J. E., Uhrichsville.
Helms, F. G., Uhrichsville.
Hendershot, B. C., New Philadelphia.
Heuetson, H. L., Uhrichsville.
Hitchcock, J. L., Uhrichsville.
Hughes, L. H., Dennison.
Kurtz, C. D., Tuscarawas.
Lower, G. F., Port Washington.

Lower, J. B., Bakersville.
Mackaman, H. A., New Philadelphia.
McCullam, J. A., Uhrichsville.
McKean, Wm., Canal Dover.
Miller, A. T., Shanesville.
Patterson, C. U., Uhrichsville.
Quinn, D. E., Dennison.
Richards, Nancy D., New Philadelphia.
Richards, T. J. W., New Philadelphia.
Sawyer, C. H., Mineral City.
Schutzbach, J. C., Strasburg.
Shalter, Martha, Canal Dover.
Shauwecker, S., Canal Dover.
Smith, J. M., New Philadelphia.
Smith, T. H., New Philadelphia.
Thompson, S. R., Urichsville.
Wagner, P. M., Canal Dover.
Weiss, George, Ragersville.
Welty, O. S., Canal Dover.
White, C. C., Mineral City.

UNION MEDICAL ASSOCIATION OF COLUMBIANA AND ADJOINING COUNTIES

Auxiliary since 1879 — Annual Meeting in May

F. T. Miles.....President.
S. R. McCready .....Vicepresident.
Della M. Walker.....Secretary.
Wm. Moore.....Treasurer.

MEMBERS

Albright, G. H., East Fairfield.
Anderson, James, Salem.
Bailey, W. N., East Liverpool.
Barckhoff, P. E., Salem.
Bates, James, Alliance.
Beach, A. M., Mineral Ridge.
Calhoun, John N., Lisbon.
Calhoun, W. M., East Liverpool.
Campbell, J. S., Wellsville.
Clark, W. R., East Liverpool.
Cope, A. L., Winona.
Dales, S. J., Alliance.
Farr, M. C., Wellsville.
Fawcett, R. C., North Jackson.
Gilmore, W. N., West Point.
Graham, Frank, Lisbon.
Griselle, E., Salem.
Hammond, J. R., Wellsville.
Hartford, P. C., East Palestine.
Heck, S., Salem.
Hill, A. J., Minerva.
Hobbs, W. A., East Liverpool.
Hoover, C. M., Alliance.
Hughes, W. K., Berlin Centre.
Hulin, O. W., Greenford.
Johnson, L. L., Alliance.
Johnson, M., Alliance.
King, A. L., Youngstown.
King, F. M., Damascus.
Kurtz, H. B., Leetonia.
Lichty, M. J., Alliance.
Marquis, T. B., Lisbon.
McConnell, S. M., Wellsville.
McCready, S. R., Leetonia.
McFarland, W. S., Wellsville.
McLaughlin, J. V., Lisbon.
Mealy, H. M, Palmyra.
Miles, F. T., Salem.
Miller, D. J., North Benton.
Moore, F. P., Lisbon.
Moore, Wm., Lisbon.
Nevin, J. E., Negley.
Nevin, W. C., Lisbon.
Ogden, C. B., East Liverpool.
Park, B. R., Wellsville.
Patterson, S. J., Elkton.
Pelley, H. J., Dungannon.
Ramsey, P. C., Alliance.
Roach, J. A., Alliance.
Santee, L. B., Marlborough.
Schaffer, H. H., Alliance.
Schiller, A. W., Salem.
Sturgeon, J., Leetonia.
Temple, J. C., Alliance.
Tressel, J. H., Alliance.
Walker, Della M., Salem.
Yates, John, Salem.
Yengling, A. C., Salem.

UNION MEDICAL ASSOCIATION OF NORTHEASTERN OHIO

G. L. Starr.....President.
Geo. S. Peck.....First Vicepresident.
A. E. Foltz.....Second Vicepresident.
J. H. Seiler.....Recording Secretary
C. W. Milliken.....Corresponding Secretary.
H. H. Jacobs .....Treasurer.

MEMBERS

Aldrich, C. J., Cleveland.
Allen, Dudley P., Cleveland.
Baker, A. R., Cleveland.
Baker, W. O., Louisville.
Bauer, F. J., Mogadore.
Bauer, M. M., Lake P. O.
Blankenhorn, H., Orrville.
Bowman, D. S., Akron.
Boyd, James P., Akron.
Brannan, T. H., Canal Dover.
Brant, A. C., Canton.
Brashear, B. B., Atlantic City.
Breck, Theo. B., Hudson.
Britton, E. E., Huron.
Bruner, Wm. E., Cleveland.
Burns, Katherine, Canton.
Bye, J. M., Canton.
Calhoun, F. P., Canton.
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Milliken, C. W., Akron.
Montenyohl, E. A., Akron.
Moody, M. M., Chatham.
Morgan, D. H., Smithville.
Morrow, E. O., Canton.
Morrow, E. P., Canton.
Myers, E. G., Canton.
Nash, E. K., Montrose.
Norris, C. E., Akron.
Parker, C. B., Cleveland.
Parks, Thos. C., Akron.
Peck, Geo. S., Youngstown.
Phillips, T. H., Canton..
Pumphrey, R. J., Massillon.
Pilkey, B. C., N. Lawrence.
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Pope, F. F. H., Dalton.
Portman, E. O., Canton.
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Pritchard, L. W., Ravenna.
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Sawyer, Chas. H., Massillon.
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Sherman, H. G., Cleveland.
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Sisler, Adam, Nimisila.
Sisler, L. E., Akron.
Skeel, R. E., Cleveland.
Smith, D. B., Cleveland.
Smith, Robert A., Ghent.
Smith, W. G., Ravenna.
Spencer, E. R., Doylestown.
Sperry, W., Tallmadge.
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Number of Members in Each of the Eighty-Eight Counties of the State.

In the first column is given the number of members of the State Society in each county, and in the second column is given the number of physicians who are eligible for membership, while in the third column is given the number of members in the county society if one exists.

The figures in this list purporting to represent the number of regular physicians in each county were kindly furnished from the records of the Ohio State Board of Medical Registration and Examination by the Secretary, Dr Frank Winders, who states that in most cases they should be reduced about 10 per cent to make allowance for deaths and removals.

Counties.	State Society Members.	Local Society Members.	Regular Physicians.
Adams	3	22	35
Allen	8	26	96
Ashtabula	7	*	100
Ashland	3	none	51
Athens	4	none	64
Auglaize	3	none	40
Belmont	15	¶52	108
Brown	8	12	51
Butler	7	††46	60
Carroll	0	none	40
Champaign	6	19	53
Clark	22	†37 and 15	95
Clermont	3	††46	58
Clinton	6	††26	52
Columbiana	9	¶§	141
Coshocton	4	none	44
Crawford	11	none	51
Cuyahoga	91	d‡286	778
Darke	11	32	61
Defiance	2	17	44
Delaware	7	27	53
Erie	10	28	49
Fairfield	10	none	37
Franklin	102	127	416
Fulton	1	none	38
Gallia	12	33	66
Geauga	1	*	10
Greene	8	††32	51
Guernsey	10	none	51
Hamilton	124	††359	897
Hancock	6	19	59
Hardin	7	none	51
Harrison	2	¶	47
Henry	2	none	37

Counties.	State Society Members.	Local Society Members.	Regular Physicians.
Highland	9	††42	64
Hocking	1	none	26
Holmes	5	d19	32
Huron	1	?	41
Jackson	8	34	40
Jefferson	5	¶9	85
Knox	11	?	56
Lake	2	*a	25
Lawrence	4	none	60
Licking	10	none	83
Logan	7	none	62
Lorain	3	26	72
Lucas	55	101 and 73	369
Madison	8	none	43
Mahoning	8	d**	121
Marion	11	20	50
Medina	4	d none	30
Meigs	1	24	49
Mercer	4	none	39
Miami	12	35	65
Monroe	0	none	49
Montgomery	35	31 and 80	264
Morgan	0	none	33
Morrow	6	28	24
Muskingum	12	52	89
Noble	1	none	35
Ottawa	1	?	22
Paulding	0	none	32
Perry	11	42	37
Pickaway	8	none	42
Pike	5	16	27
Portage	4	d none	41
Preble	5	none	33
Putnam	9	none	46
Richland	5	none	68
Ross	6	37	62
Sandusky	3	none	58
Scioto	10	39	52
Seneca	11	§§	76
Shelby	4	26	38
Stark	14	d50	157
Summit	9	d¶¶	114
Trumbull	6	d none ?	80
Tuscarawas	13	d41	92
Union	11	b	46
Van Wert	3	none	51
Vinton	3	none	13
Warren	10	††30	46
Washington	9	43	107
Wayne	13	d47	68
Williams	1	none	51
ood	4	c	59
andot	3	none	30

*The Ashtabula, Lake and Geauga Medical Society reports a membership of 52, while the regular physicians of the three counties number 120 to 136.

The Central Ohio Medical Society has 76 members drawn from counties near Columbus. No information in regard to the territory included could be obtained from the Society.

†In Clark County there is in addition to the Clark County Medical Society the Springfield Academy of Medicine, both in affiliation with the State Society. There are 85 to 95 regular physicians in Clark County, and the two Societies, excluding duplicate names, have a combined membership of 52.

‡In Cuyahoga County there are two medical societies, the Cleveland Medical Society with a membership of 265 and the Cuyahoga County Medical Society with 119 members. Excluding duplicate names, the combined membership amounts to 286. This does not include the 144 nonresident members of the Cleveland Medical Society.

§The Union Medical Association of Columbiana and adjoining counties has 58 members. No information as to what counties are included could be obtained from the Society.

¶The Eastern Ohio Medical Association includes the counties of Belmont, Jefferson, Harrison, and Columbiana. It numbers 73 members, while there are 381 regular physicians in the counties that it represents.

In Toledo there are two societies, the Lucas County Medical Society reporting 101 members, and the Toledo Medical Association with 73 members; in all 174 physicians in the societies, while there are from 330 to 369 regular physicians in the county.

The Mansfield Academy of Medicine made no report this year.

**There is a county medical society in Mahoning County, but it is not affiliated with the State Society.

††The Miami Valley Medical Society covers the counties of Clermont, Clinton, Butler, Greene, Hamilton, Highland and Warren. It has 97 members, while these counties are credited with 1,228 regular physicians, but each one has a county medical society.

Montgomery County has two societies, the Montgomery County Medical Society with 80 members, and the Dayton Academy of Medicine with 31 members.

The North Central Ohio Medical Society has 69 members. No further information could be secured concerning its territory.

The Northwestern Ohio Medical Association includes in its district all the counties of northwestern Ohio and has a membership of 453.

Pickaway and Portage Counties are dropped from this year's list, these societies being reported defunct.

§§Seneca County has a society lately organized that is not yet in affiliation with the State Society and that has 34 members.

¶¶Summit County has a medical society, but it is not yet in affiliation with the State Society.

a Lake County has recently been organized separately, but the society is not yet in affiliation.

b Union County has a newly organized county medical society of 18 members that is not yet in affiliation with the State Society.

c Wood County has a lately organized county medical society, that is not yet in affiliation.

d The Union Medical Association of Northeastern Ohio includes the counties of Cuyahoga, Holmes, Mahoning, Medina, Portage, Stark, Summit, Trumbull, Tuscarawas, and Wayne. These contain 1,513 regular physicians, and this society has a membership of 175. Of course some of these counties are themselves well organized.

INDEX OF AUTHORS

Bain, Frank D..... 35
Baldwin, J. F..... 286
Bettman, Henry Wald..... 75
Billings, Frank..... 27
Brush, Edmund C..... 170
Bunts, Frank E..... 180
Chapman, W. C..... 112
Clark, C. F..... 350
Coleman, N. R..... 304
Conklin, W. J..... 94
Crile, George W..... 191
Eichberg, Joseph..... 81
Foshay, P. Maxwell..... 103
Freiberg, Albert H..... 259
Gillette, Wm. J..... 235
Hall, Rufus B..... 260
Hamilton, W. D..... 167
Humiston, Wm. H..... 257
Keller, Lester..... 334
Linhart, C. P..... 295
Martin, Thos. Chas..... 217
Ohlmacher, A. P..... 367
Palmer, Chauncey D..... 290
Pennell, Wm. W..... 140
Philips, W. S..... 65
Probst, C. O..... 126
Ransohoff, Joseph..... 225
Scott, N. Stone..... 246
Sylvester, John E..... 135
Vinnedge, W. W..... 343
West, J. Parke..... 57
Whitacre, Horace J..... 147
Wolfstein, D. I..... 372
Wyeth, John A..... 44

INDEX OF ORIGINAL ARTICLES

A Surgical Operation 440
Abnormal Conditions of the Foot as Cause of Knee Symptoms. 359
Acute Anterior Poliomyelitis in the Adult 372
Addresses 27
Address of the President 35
Address in Surgery 44
Albuminuria for Sixteen Years Without Perceptible Impairment of Health 103
Autotoxemia 140
Cardiovascular System in Interstitial Nephritis—The 94
Cataract: To What Extent may we Hope by Treatment to Delay the Progress of 350
Cystic Adenoma of the Pancreas, Extirpation 225
Epigastric Pain 75
Epilepsy—Being a Summary of the Results in One Hundred and Thirty Autopsies—The Morbid Anatomy of 367
Esophagus, Traumatic Stricture of 180
Glandular Fever 57
Gold—Some Experience with the Salts of 135
Gynecology 235
Hemorrhoids Under Local Anesthesia—A New Method for the Removal of 217
Hospitals in Small Cities 334
House-to-House Operating 170
How the Medical Practice Act in Ohio Can be Most Efficiently Enforced 304
Hypertrophy of the Prostate Gland 147
Importance of the Early Recognition of Abdominal Infection .. 167
Interstitial Nephritis—The Cardiovascular System in 94
Laryngectomy 191
Limitations of Medical Therapeutics 27
Limited Number of Observations on the Serum Treatment of Pneumonia—A 81
Medicine 57
Morbid Anatomy of Epilepsy—Being a Summary of the Result in One Hundred and Thirty Autopsies—The 367
eurology 367

New Method for the Removal of Hemorrhoids under Local Anesthesia—A 217
Nose and Throat..... 295
Ophthalmology 350
Orthopedic Surgery 359
Ovarian Pregnancy—Is It an Explanation of Ovarian Hematomas? 246
Pancreas, Extirpation—Cystic Adenoma of the..... 225
Pelvic Disease, Before and During Puberty—The Prevention of 257
Pelvic Disease During and After Labor—The Prevention of.... 268
Pelvic Inflammatory Disease After Marriage—The Prevention of 260
Pneumonia—A Limited Number of Observations on the Serum Treatment of 81
Porro-Cesarean Section for Placenta Previa Centralis—Report of a Case of..... 235
President's Address 35
Prevention of Pelvic Disease Before and During Puberty—The. 257
Prevention of Pelvic Disease During and After Labor—The.... 268
Prevention of Pelvic Inflammatory Disease After Marriage—The 260
Pretubercular State—The 65
Prevention of Typhoid Fever in Villages and on the Farm..... 126
Professional Practice and Morals in Relation to Life Insurance Work 343
Prostate Gland—Hypertrophy of the..... 147
Rapid Dilation of the Eustachian Tube by Electrolysis—A Factor in Chronic Catarrhal Otitis Media—A..... 295
Report of a case of Porro-Cesarean Section for Placenta Previa Centralis 235
Serum Treatment of Pneumonia—A Limited Number of Observations on the..... 81
Smallpox—Why is the Present Epidemic Likely to Continue?.. 112
Some Experience With the Salts of Gold..... 135
State Medicine 304
Surgery 147
Therapeutics, Limitation of Medical..... 27
To What Extent May We Hope by Treatment to Delay the Progress of Cataract?..... 350
Traumatic Stricture of the Esophagus..... 180
Typhoid Fever in Villages and on the Farm—The Prevention of 126
What is the Significance of Cervical Lacerations?..... 290
Why is the Present Epidemic of Smallpox Likely to Continue? 112

INDEX OF MEMBERS WHO DISCUSSED PAPERS

Baldwin, J. F. 241
Bonifield, Chas. L. 278
Bryan, F. F. 166
Carothers, Robert 178
Carson, Arch. I. 165
Colville, G. H. 71-244
Covington, P. D. 122
Cromer, P. E. 72
Evans, Chas. Seth. 122
Evans, Otho. 242
Gillette, Wm. J. 280
Halderman, S. S. 175
Hall, Rufus B. 243
Hon, U. H. 80-281
Humiston, Wm. H. 175-243
Hussey, M. F. 326
Keller, Lester 220-328
Kimmell, J. A. 71-119
Kramer, S. P. 73
Larimore, F. C. 190
Lawrence, F. F. 245
Lorimer, H. F. 177
Lyle, B. F. 69-123
Means, Charles 302
Myers, Park L. 125
Ransohoff, Joseph 164-341
Ricketts, Edwin 174-245-284
Silver, D. R. 330
Stanton, Byron 120
Steiner, D. W. 283
Stephenson, Young 121-282
Sylvester, John E. 339
Thompson, John A. 70-176
Thorn, S. S. 124-281
Tuckerman, L. B. 163-372
Vinnedge, W. W. 340
Warner, Frank 111-135
Wilson, E. F. 110
Winders, Frank 331
Winke, E. Gustav. 240-244